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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

APRIL, 95

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 $m\ s^{-1}$ (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
A8SF	ALL	MSLP	SUR	58	0	0	1.6	4.0	4.4
CG2613	ALL	MSLP	SUR	21	4	19	5.8	-5.6	8.1
C6IL3	ALL	MSLP	SUR	40	1	2	1.9	4.3	4.7
C6KP	ALL	MSLP	SUR	20	0	0	3.0	-11.4	11.8
C6KP9	ALL	MSLP	SUR	22	0	0	2.2	-4.3	4.8
DEFL	ALL	MSLP	SUR	69	0	0	2.3	-7.2	7.6
DIOR	ALL	MSLP	SUR	32	0	0	1.0	4.9	5.0
D5NE	ALL	MSLP	SUR	42	0	0	1.8	5.3	5.6
ELFY8	ALL	MSLP	SUR	30	0	0	1.7	4.6	4.8
LACF4	ALL	MSLP	SUR	45	0	0	2.8	-4.4	5.2
NLGF	ALL	MSLP	SUR	24	0	0	1.0	4.2	4.3
OYMO2	ALL	MSLP	SUR	34	0	0	1.0	-4.5	4.6
TCAF	ALL	MSLP	SUR	31	0	0	4.4	4.6	6.3
UFAA	ALL	MSLP	SUR	34	0	0	1.4	6.2	6.3
VRKO	ALL	MSLP	SUR	20	0	0	1.6	-5.3	5.5
WAR7324	ALL	MSLP	SUR	30	9	30	5.3	-4.5	6.9
WZE4928	ALL	MSLP	SUR	54	27	50	3.4	0.0	3.4
3EAY5	ALL	MSLP	SUR	21	0	0	1.2	-4.4	4.5
3EER8	ALL	MSLP	SUR	25	0	0	1.1	-4.9	5.0
3EJH6	ALL	MSLP	SUR	20	0	0	1.2	5.5	5.6
3ESE9	ALL	MSLP	SUR	23	0	0	1.6	4.6	4.9
3EWK9	ALL	MSLP	SUR	27	0	0	1.0	4.3	4.4
3EZK9	ALL	MSLP	SUR	36	0	0	0.9	4.3	4.4
3FJJ3	ALL	MSLP	SUR	25	0	0	1.3	-7.0	7.1
WIND SPEED									
C6JD4	ALL	SPEED	SUR	53	0	0	4.5	9.1	10.1
DIDA	ALL	SPEED	SUR	73	1	1	5.3	7.5	9.2
DPSI	ALL	SPEED	SUR	24	0	0	5.9	5.1	7.8
ELNV8	ALL	SPEED	SUR	37	0	0	3.9	5.2	6.5
ELPB8	ALL	SPEED	SUR	43	1	2	8.3	9.1	12.3
FNCM	ALL	SPEED	SUR	75	0	0	6.4	9.5	11.5
FNWC	ALL	SPEED	SUR	28	0	0	4.7	6.2	7.8
FNZQ	ALL	SPEED	SUR	64	2	3	4.7	8.3	9.6
HPKW	ALL	SPEED	SUR	26	1	4	5.0	9.8	11.0
HSGX	ALL	SPEED	SUR	21	0	0	3.1	7.1	7.7
JKPP	ALL	SPEED	SUR	29	0	0	3.4	5.0	6.1
OXRA6	ALL	SPEED	SUR	24	0	0	4.3	5.1	6.7
P3LE5	ALL	SPEED	SUR	39	0	0	3.7	-6.3	7.4
VPGA	ALL	SPEED	SUR	32	0	0	6.9	6.7	9.7
VRUK4	ALL	SPEED	SUR	25	0	0	4.0	5.6	6.8
62108	ALL	SPEED	SUR	104	0	0	3.7	-5.2	6.4
9KKL	ALL	SPEED	SUR	34	1	3	4.9	7.8	9.2
WIND DIRECTION									
DAFC	ALL	DIRN.	SUR	21	0	0	28.3	31.2	42.1
DCG2959D	ALL	DIRN.	SUR	37	0	0	34.2	50.6	61.1
22001	ALL	DIRN.	SUR	85	0	0	44.8	33.9	56.2
32317	ALL	DIRN.	SUR	46	0	0	24.8	35.2	43.1
32318	ALL	DIRN.	SUR	75	0	0	26.6	30.7	40.6
45007	ALL	DIRN.	SUR	20	0	0	36.6	-32.0	48.7
46053	ALL	DIRN.	SUR	79	0	0	38.4	-37.7	53.8
46146	ALL	DIRN.	SUR	52	0	0	62.4	-31.0	69.7
51309	ALL	DIRN.	SUR	80	0	0	24.7	-32.6	40.9
52004	ALL	DIRN.	SUR	31	0	0	49.8	-32.0	59.2
62029	ALL	DIRN.	SUR	68	0	0	88.7	-5.3	88.9

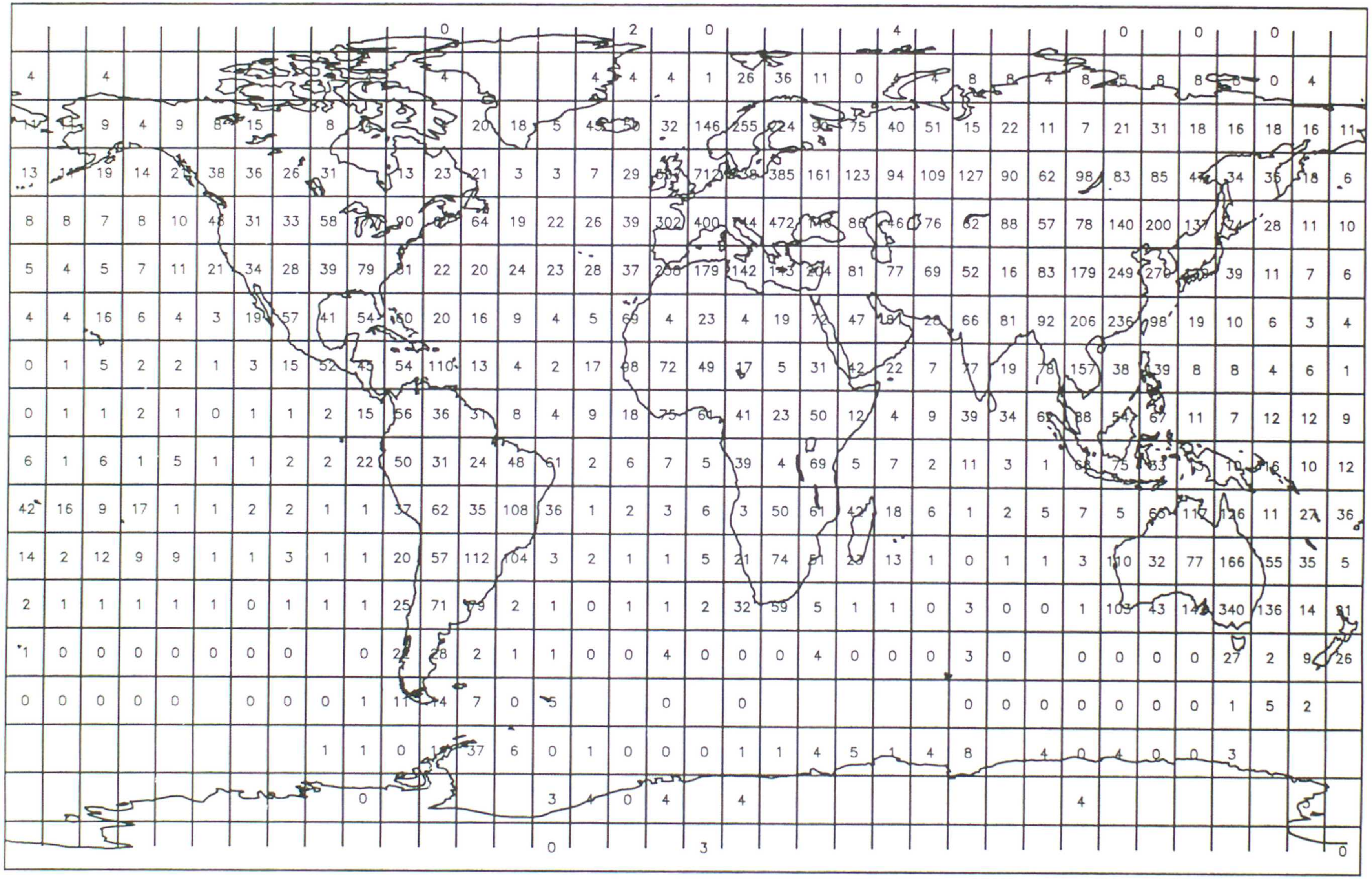
AVAILABILITY – SHIP/SYNOP – APRIL 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 19539

FIGURE 1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13 14 19 14 21 38 36 26 31 13 23 21 3 3 7 29 53 712 38 385 161 123 94 109 127 90 62 98 83 85 47 34 35 18 6
8 8 7 8 10 48 31 33 58 170 90 8 64 19 22 26 39 302 400 144 472 148 86 46 76 62 88 57 78 140 200 137 74 28 11 10
5 4 5 7 11 21 34 28 39 79 81 22 20 24 23 28 37 258 179 142 143 204 81 77 69 52 16 83 179 249 270 39 11 7 6
4 4 16 6 4 3 19 57 41 54 160 20 16 9 4 5 69 4 23 4 19 72 47 181 28 66 81 92 206 236 98 19 10 6 3 4
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0 1 1 2 1 0 1 1 2 15 56 36 31 8 4 9 18 75 61 41 23 50 12 4 9 39 34 62 88 54 67 11 7 12 12 9
6 1 6 1 5 1 1 2 2 22 50 31 24 48 61 2 6 7 5 39 4 69 5 7 2 11 3 1 68 75 83 13 10 16 10 12
42 16 9 17 1 1 2 2 1 1 37 62 35 108 36 1 2 3 6 3 50 61 42 18 6 1 2 5 7 5 65 117 126 11 27 36
14 2 12 9 9 1 1 3 1 1 20 57 112 104 3 2 1 1 5 21 74 51 23 13 1 0 1 1 3 110 32 77 166 55 35 5
2 1 1 1 1 1 0 1 1 1 25 71 79 2 1 0 1 1 2 32 59 5 1 1 0 3 0 0 1 103 43 142 340 136 14 31
1 0 0 0 0 0 0 0 0 22 28 2 1 1 0 0 4 0 0 0 4 0 0 0 3 0 0 0 0 0 27 2 9 26
0 0 0 0 0 0 0 0 1 11 14 7 0 5 0 0 0 0 0 0 0 0 0 1 5 2
1 1 0 1 37 6 0 1 0 0 0 1 1 4 5 1 4 8 4 0 4 0 0 3
0 3 4 0 4 4 4
0 3 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 $m\ s^{-1}$ (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25.

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
46521	33.4	-117.6	ALL	MSLP	SUR	23	0	0	1.3	-4.7	4.9
52526	24.1	123.8	ALL	MSLP	SUR	25	4	16	6.7	-2.4	7.2
62805	58.0	-28.1	ALL	MSLP	SUR	1503	755	50	3.7	0.2	3.7
65592	61.0	-9.6	ALL	MSLP	SUR	202	2	1	1.8	6.9	7.1
WIND SPEED											
52526	24.1	123.8	ALL	SPEED	SUR	35	0	0	3.0	-7.3	7.9
52656	7.3	151.6	ALL	SPEED	SUR	63	0	0	1.6	-5.7	6.0
WIND DIRECTION											
23509	18.6	61.4	ALL	DIRN.	SUR	28	0	0	91.3	46.8	102.6
23511	18.4	64.3	ALL	DIRN.	SUR	21	0	0	18.3	31.4	36.3
46657	47.0	-151.0	ALL	DIRN.	SUR	203	0	0	26.4	-33.8	42.9
52655	3.1	122.8	ALL	DIRN.	SUR	21	0	0	28.7	-35.7	45.8
55590	-41.8	155.4	ALL	DIRN.	SUR	474	0	0	65.7	53.4	84.7

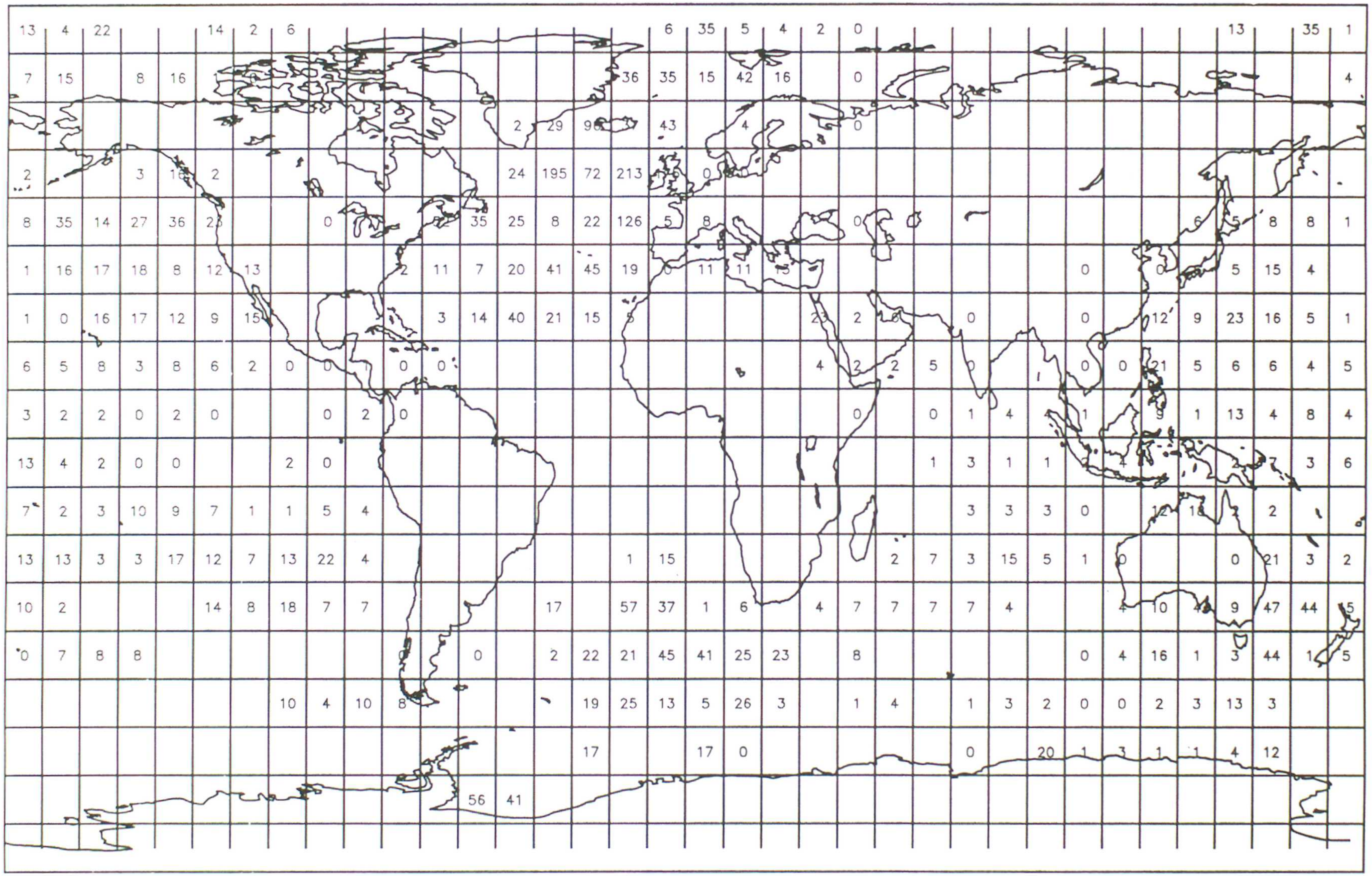
AVAILABILITY – DRIBU – APRIL 1995

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 3731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2 29 96 43 4 0
2 3 2 24 195 72 213 0
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1 16 17 18 8 12 13 2 11 7 20 41 45 19 11 11 0 0 5 15 4
1 0 16 17 12 9 15 3 14 40 21 15 2 0 0 12 9 23 16 5 1
6 5 8 3 8 6 2 0 0 0 0 4 2 2 5 0 0 21 5 6 6 4 5
3 2 2 0 2 0 0 2 0 0 0 1 4 1 1 13 4 8 4
13 4 2 0 0 2 0 1 3 1 1 3 6
7 2 3 10 9 7 1 1 5 4 3 3 3 0 2
13 13 3 3 17 12 7 13 22 4 1 15 2 7 3 15 5 1 0 0 21 3 2
10 2 14 8 18 7 7 17 57 37 1 6 4 7 7 7 7 4 10 9 47 44
0 7 8 8 0 2 22 21 45 41 25 23 8 0 4 16 1 3 44 5
10 4 10 8 19 25 13 5 26 3 1 4 1 3 2 0 0 2 3 13 3
17 17 0 0 20 1 3 1 1 4 12
56 41

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

Note:- **For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.**
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	110	0	0	88	0.8	4.5	4.6
60468	35.6N	6.2E	1052	S8	101	101	100	21	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	112	112	100	100	0.0	0.0	0.0
60571	31.6N	2.2W	773	S8	110	0	0	19	1.1	-4.0	4.1
60670	24.6N	9.5E	1054	S8	107	6	6	93	1.6	8.5	8.6
62762	13.6N	33.6E	418	MS	33	0	0	45	1.1	6.0	6.1
63333	11.1N	39.7E	1916	MS	94	1	1	90	1.3	7.5	7.6
63453	8.8N	39.8E	1062	S	74	0	0	100	1.0	11.6	11.6
63478	5.1N	44.6E	320	MS	48	0	0	2	1.9	7.4	7.6
68442	29.1S	26.3E	1354	S8	107	0	0	99	0.8	-5.4	5.5

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
25902	60.8N	151.8E	797	MS	56	12	21	96	0.8	-13.7	13.7
29956	52.8N	99.9E	455	MS	107	1	1	56	5.6	4.1	6.9
29999	52.5N	99.8E	1570	S8	91	91	100	97	0.0	0.0	0.0
30554	54.5N	113.6E	995	MS	58	0	0	100	1.4	10.9	11.0
30739	52.2N	109.8E	666	MS	57	0	0	61	1.0	-5.9	6.0
30741	52.9N	110.5E	1255	S8	111	4	4	27	1.7	-4.4	4.7
36870	43.4N	77.0E	663	MS	58	58	100	100	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	64	0	0	97	1.0	6.7	6.8
40743	36.2N	57.7E	941	MS	101	1	1	24	1.3	-5.0	5.2
40762	35.3N	59.2E	1333	MS	93	23	25	98	1.0	-13.3	13.3
40763	35.2N	58.5E	1060	MS	33	1	3	30	1.4	-5.9	6.1
40783	32.4N	49.7E	1972	MS	27	0	0	96	1.2	-7.7	7.8
40789	33.8N	55.1E	921	MS	45	0	0	98	1.9	8.2	8.4
40818	31.2N	52.7E	2004	MS	63	0	0	13	1.1	-4.3	4.4
40836	30.8N	51.7E	1880	MS	63	1	2	94	1.2	7.0	7.1
40859	29.0N	53.7E	1383	MS	63	1	2	100	1.2	8.9	9.0
41244	24.2N	55.8E	299	M	117	0	0	3	1.6	7.1	7.3
41254	23.1N	57.7E	1755	S8	58	58	100	88	0.0	0.0	0.0
44277	46.4N	96.3E	2147	MS	101	1	1	16	1.4	-4.6	4.8
44292	47.9N	107.0E	1338	MS	94	1	1	55	1.2	4.5	4.7
44416	28.6N	81.6E	720	MS	78	0	0	6	1.9	4.1	4.5
44477	27.0N	87.4E	1445	S8	65	65	100	100	0.0	0.0	0.0
47022	40.8N	128.2E	1206	S	117	1	1	37	1.2	4.0	4.2
52602	38.8N	93.4E	2734	S	119	0	0	29	1.8	-6.6	6.8
56144	31.7N	98.6E	3204	S	109	1	1	30	2.1	-4.1	4.6
56287	30.0N	103.0E	629	M	118	0	0	0	1.6	5.0	5.2
56444	28.5N	98.9E	3488	S	116	116	100	100	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	112	2	2	81	2.8	6.4	7.0
57816	26.5N	106.7E	1222	MS	119	113	95	100	0.4	14.4	14.4

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	34	0	0	0	1.6	-4.7	5.0
80431	9.9N	67.3W	429	MS	80	0	0	0	1.5	-4.2	4.5
82067	0.6N	69.2W	120	M	26	0	0	4	3.7	5.0	6.2
82704	7.6S	72.7W	170	MS	64	0	0	0	2.0	-4.8	5.2
83208	12.7S	60.1W	652	MS	52	1	2	8	1.6	4.6	4.9
83235	12.3S	46.4W	660	MS	74	1	1	76	1.1	6.1	6.2
83295	13.4S	39.9W	755	MS	29	0	0	97	0.5	-4.9	4.9
83332	14.1S	46.4W	950	MS	68	9	13	100	0.9	13.5	13.5
83423	16.7S	49.3W	729	MS	83	0	0	67	0.9	-5.6	5.7
83488	17.8S	42.9W	1097	MS	84	84	100	99	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	52	0	0	15	2.9	-7.7	8.2

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83531	18.6S	46.5W	896	MS	75	0	0	81	0.7	-6.8	6.8
83587	19.8S	43.9W	850	MS	88	0	0	98	0.9	-8.0	8.1
83689	21.3S	43.8W	1171	MS	62	0	0	84	0.9	4.2	4.3
83704	22.3S	53.9W	369	MS	66	1	2	73	3.9	-7.9	8.8
83781	23.5S	46.6W	792	MS	87	0	0	99	1.1	-5.7	5.8
84425	5.9S	76.1W	184	MS	74	1	1	14	3.1	5.2	6.1
84455	6.5S	76.4W	282	MS	86	0	0	6	2.1	5.8	6.2
84472	7.1S	78.5W	2622	S	40	0	0	98	2.3	-7.1	7.5
84531	9.2S	78.5W	21	MS	63	0	0	0	1.0	4.1	4.2
84658	12.6S	69.2W	266	MS	118	2	2	36	2.3	5.9	6.3
84686	13.6S	72.0W	3249	S	117	0	0	36	1.9	-7.4	7.6
84782	18.1S	70.3W	469	MS	118	2	2	5	1.4	5.7	5.9
85223	17.4S	66.2W	2548	S7	110	1	1	14	2.1	-4.4	4.9
85264	18.5S	64.1W	1998	S	47	0	0	19	2.4	-4.3	4.9
85312	19.8S	63.9W	992	S	38	5	13	97	1.5	-11.6	11.7
85406	18.3S	70.3W	58	M	116	0	0	3	1.2	5.1	5.2
87046	24.4S	65.1W	905	S8	101	71	70	67	2.2	0.8	2.3
87322	31.3S	66.6W	658	MS	37	37	100	0	0.0	0.0	0.0

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	43	1	2	98	0.8	-11.7	11.7
76160	29.1N	111.0W	211	MS	37	0	0	8	1.1	-4.0	4.1
76373	25.3N	105.8W	1967	MS	70	61	87	100	0.7	14.1	14.1
76539	22.1N	101.0W	1871	MS	96	3	3	74	1.1	-4.6	4.7
76632	20.1N	98.7W	2417	MS	63	1	2	97	2.1	-6.9	7.2
76658	19.3N	103.6W	723	MS	21	21	100	0	0.0	0.0	0.0
76692	19.1N	96.1W	13	MS	82	0	0	0	1.1	4.8	4.9
76726	18.9N	99.3W	1560	MS	75	1	1	99	1.0	-8.4	8.5
76762	17.5N	99.5W	1360	MS	81	2	2	99	1.0	11.2	11.2
76840	16.2N	93.9W	64	MS	48	0	0	0	1.1	4.1	4.2
76848	16.3N	92.1W	1530	MS	99	12	12	98	0.7	-13.6	13.6

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
98437	13.4N	122.5E	45	M	39	0	0	97	0.8	-5.0	5.1

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	89	1	1	98	1.1	-5.8	5.9
04301	83.6N	33.4W	4	MS	113	21	19	33	3.4	4.2	5.4
04305	82.2N	29.9W	13	MS	21	19	90	14	5.9	4.3	7.3
08221	40.5N	3.6W	633	MS	113	0	0	96	1.5	5.6	5.8
11346	47.3N	12.8E	917	S	88	0	0	57	1.4	-4.6	4.8
15052	47.4N	25.6E	1541	S8	111	2	2	83	1.1	-5.0	5.1
16020	46.5N	11.3E	1461	MS	81	81	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	112	2	2	88	1.2	-7.7	7.8
17084	40.6N	35.0E	837	MS	112	0	0	97	1.3	7.0	7.1
17260	37.1N	37.4E	855	MS	110	110	100	100	0.0	0.0	0.0
37228	43.1N	44.6E	670	MS	54	0	0	72	2.1	-4.8	5.2
40184	31.8N	35.2E	809	S8	117	0	0	100	1.1	5.8	5.9

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89208	90.0S	0.0W	2835	S7	104	104	100	36	0.0	0.0	0.0
89264	71.4S	68.9W	780	S8	105	1	1	10	3.4	4.4	5.6
89757	73.8S	55.7E	2775	S7	72	72	100	44	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	81	10	12	44	3.3	-7.8	8.5
89805	74.1S	109.8E	3070	S7	78	24	31	17	5.4	-1.6	5.6
89811	66.7S	112.9E	1362	S8	79	3	4	47	3.3	-6.7	7.5
89814	66.0S	111.1E	10	MS	67	17	25	31	4.9	-0.1	4.9
89828	74.5S	123.0E	3280	S7	105	2	2	25	4.2	5.0	6.5
89832	66.7S	139.8E	240	MS	53	53	100	100	0.0	0.0	0.0
89847	67.6S	146.0E	30	MS	97	0	0	1	2.9	-7.5	8.0
89860	74.2S	160.3E	1772	S8	97	2	2	5	3.1	-5.9	6.7
89861	74.5S	160.5E	1525	S8	91	5	5	15	3.0	-8.2	8.7

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:70.0 - 500.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	71	1	100	2.0	0.7	70	0	0	0	6.8	1.8
AAL	4283	0	1	1.9	0.1	4292	0	2	0	8.2	1.1
AAN	76	0	3	2.1	-0.5	69	0	1	0	9.0	-0.6
AAR	1897	0	1	1.8	-0.3	1902	0	2	0	8.6	0.9
ACA	928	0	2	2.1	-0.3	952	0	2	1	7.0	0.3
ACF	31	0	3	1.6	0.6	31	0	3	0	7.9	0.3
ACI	47	2	4	1.7	0.9	47	0	4	0	11.0	2.1
AEA	132	11	100	5.4	3.0	127	0	9	0	11.1	0.5
AEL	639	1	3	1.8	-0.2	639	0	3	0	8.9	1.2
AFL	231	0	100	3.0	1.5	234	0	100	0	8.6	1.2
AFR	1353	1	3	1.8	-0.3	1362	0	3	0	7.7	1.1
AIC	36	0	6	2.3	-0.3	39	0	10	0	12.9	-1.2
AJJ	79	3	5	2.5	-0.4	78	0	4	0	12.6	1.4
AMT	417	0	0	1.6	0.5	417	0	1	0	7.7	0.4
AMX	279	1	3	1.6	-0.4	278	0	5	0	9.7	0.5
ANA	825	1	1	1.9	-0.6	823	0	2	0	8.6	1.3
ANZ	3212	1	2	1.9	0.0	3198	0	2	1	8.0	1.6
AOM	573	1	2	1.6	0.5	573	0	2	0	7.8	1.4
ARP	71	0	7	2.5	0.4	69	0	4	0	7.8	2.3
ASY	31	0	6	1.9	0.5	31	0	0	0	8.9	3.9
ATN	42	2	5	2.4	-0.9	39	0	28	0	20.6	2.6
AUA	37	0	5	1.5	-0.8	38	0	8	0	8.5	0.3
AVA	346	1	2	2.2	-0.1	345	0	3	0	8.8	0.8
AVN	37	0	0	1.3	0.4	37	0	0	0	9.3	1.6
AZA	439	0	2	1.8	0.5	444	0	3	0	8.1	1.5
BAL	179	1	12	2.0	-0.4	187	0	12	0	7.5	1.1
BAW	1730	1	2	1.9	-0.1	1737	0	3	0	7.3	0.7
BBB	43	2	23	1.3	-0.3	44	0	20	0	8.9	0.6
BWA	403	1	2	1.8	0.8	406	0	2	0	7.9	1.4
CAL	1684	1	2	2.2	0.0	1689	0	2	0	9.1	1.2
CCA	107	0	4	2.7	0.5	107	0	97	0	11.0	1.9
CDN	2364	0	1	2.0	0.4	2369	0	1	0	8.5	1.3
CES	140	0	2	1.9	0.5	143	0	3	0	9.5	0.4
CFG	1069	0	2	2.0	-1.0	1072	0	1	0	8.4	0.7
CKS	83	7	8	2.0	1.4	84	0	8	2	13.6	0.9
CKT	81	1	4	1.8	0.2	81	0	6	0	12.6	1.2
CLI	35	0	6	2.4	0.0	38	3	5	0	7.6	-0.2
CLX	78	0	1	1.7	-0.8	78	0	1	1	7.2	-0.6
CMI	1096	1	2	2.0	0.3	1102	0	2	0	8.1	1.3
CMM	274	0	100	2.5	0.1	273	0	2	0	8.5	0.5
COA	716	0	0	1.5	0.3	715	0	1	0	8.0	0.4
CPA	38	3	3	1.5	-0.8	36	0	3	0	7.1	1.4
CRL	335	1	1	1.8	0.1	333	0	2	1	8.4	1.5
CSA	29	0	0	1.5	-0.7	29	0	0	0	7.8	0.7
CTM	40	0	13	1.7	-0.5	39	0	15	3	6.2	1.1
CUB	166	1	6	2.6	1.3	167	0	100	1	11.0	1.1
DAL	5517	0	1	1.9	0.4	5329	0	2	0	8.2	1.0
DHL	421	2	100	3.6	-1.8	421	0	4	1	9.2	0.6
DLH	3799	0	9	2.0	0.1	3793	0	11	2	7.5	0.9
DOA	175	2	10	1.9	-0.6	163	0	10	0	9.1	0.8
ELY	84	1	6	1.7	0.3	86	1	9	0	8.7	1.3
EVA	1457	1	2	1.9	-0.6	1461	0	2	0	9.5	1.3
EWW	22	14	18	4.2	-0.9	21	0	14	0	15.3	6.9
FDX	832	0	2	2.1	0.7	836	0	3	1	9.3	1.2
FIN	360	1	2	1.9	0.4	358	0	2	1	7.5	0.5
FJI	648	2	4	1.7	0.6	641	0	3	0	8.9	1.7
FKO	36	3	6	2.2	0.1	36	0	6	0	10.6	0.7
FMN	64	0	3	1.8	0.2	64	0	2	0	8.6	2.7
GAF	99	0	2	2.2	0.5	97	0	3	2	8.1	0.9

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GFA	29	0	7	2.3	0.2	29	0	7	0	7.7	0.3
GIA	237	3	6	2.1	-0.1	241	0	1	0	7.4	1.0
HAL	1127	1	1	1.6	0.4	1129	0	1	0	9.1	0.8
HLF	128	1	1	1.4	-1.0	125	0	2	0	8.2	1.2
HRH	29	0	3	1.6	0.4	29	0	7	0	10.1	2.1
IBE	2518	1	18	2.1	0.5	2511	0	18	0	8.8	1.0
ICE	443	1	1	1.5	-0.2	441	0	2	0	7.6	0.8
IQQ	32	0	0	1.9	-0.1	34	0	3	0	8.1	2.1
JAA	48	2	4	2.0	0.7	48	0	4	0	9.1	2.7
JAL	5453	0	1	1.9	0.2	5460	0	2	0	8.8	1.1
JAZ	44	0	2	1.6	1.0	44	0	2	0	9.3	0.8
KAL	3559	1	2	2.1	0.2	3563	0	2	0	9.4	1.4
KLM	2313	1	2	1.9	0.1	2318	0	3	0	7.9	1.2
LDA	157	0	8	1.9	-1.0	158	0	8	0	7.6	0.7
LDI	247	0	2	2.4	-1.8	250	0	3	0	9.6	1.0
LIB	475	1	1	1.6	0.4	477	0	2	0	8.6	0.9
LOT	229	0	2	1.7	-0.4	229	0	1	0	6.9	0.7
LTU	815	0	1	1.8	0.4	797	0	2	1	7.7	0.8
MAS	234	0	2	2.2	-0.2	234	0	6	0	11.3	0.8
MDA	113	0	5	3.0	1.6	115	1	2	0	8.8	1.9
MKD	38	0	0	1.7	-1.0	38	0	0	0	6.7	1.3
MPH	644	0	2	2.1	-0.8	646	0	2	0	8.2	0.7
MRS	47	0	4	3.8	-2.7	49	0	6	0	14.3	5.4
NCA	678	0	1	1.9	0.6	675	0	1	0	9.4	0.8
NGA	90	1	3	1.8	-0.5	90	0	100	0	13.9	-2.5
NWA	9541	1	1	2.1	0.6	9571	0	2	0	8.6	1.1
OAL	45	0	2	3.0	2.0	46	0	4	0	10.0	1.3
PAC	45	2	4	2.7	1.7	45	0	2	0	8.1	1.6
PAL	1068	1	2	1.9	-0.2	1074	0	2	0	9.6	1.4
PAO	204	1	2	1.6	0.1	202	0	2	1	8.0	2.1
QFA	1815	1	3	1.8	0.2	1810	0	3	1	8.2	1.1
QFX	41	0	0	0.8	-0.3	41	0	0	0	7.3	3.3
RAF	168	1	3	1.7	0.2	168	0	4	1	10.5	1.6
RBA	21	0	0	1.8	0.1	21	0	0	0	6.4	1.3
RIA	81	35	17	3.1	2.1	84	0	4	0	10.5	0.7
RJA	96	2	5	2.0	0.6	97	0	2	0	8.0	0.8
RKA	20	0	10	1.4	-0.7	20	0	10	0	8.4	1.2
RON	54	0	2	1.4	0.3	54	0	6	0	9.7	2.5
ROT	23	4	4	1.7	0.7	25	0	4	0	6.9	-0.9
RRR	190	1	12	2.0	0.1	192	0	13	1	6.9	0.4
SAA	220	1	2	1.7	-0.8	217	0	4	0	9.2	0.7
SAB	54	0	0	1.7	-0.5	55	0	2	0	6.8	2.4
SAS	1533	0	0	1.8	-0.4	1525	0	1	1	7.1	0.9
SIA	1153	1	1	2.0	-0.7	1155	0	2	0	9.7	1.0
SJM	25	0	0	1.8	-0.7	25	0	0	0	6.8	0.0
SOL	43	2	5	0.8	0.3	43	0	7	0	12.2	2.7
SPP	359	0	8	1.7	-0.2	349	0	9	0	8.6	1.2
SVA	79	0	5	1.4	0.1	90	0	7	0	8.4	-0.5
SWR	203	1	2	2.0	-0.1	204	0	1	0	8.2	0.7
TAP	589	1	3	1.9	-0.2	585	0	3	0	8.7	1.4
TEJ	45	4	11	2.7	0.9	46	0	11	0	7.0	0.5
THA	292	0	1	1.9	-0.5	291	0	2	0	9.0	0.6
THY	31	6	13	2.7	0.3	35	0	20	0	12.8	3.0
TIH	117	4	4	1.6	-0.2	117	0	3	0	7.9	0.5
TOW	95	1	3	1.7	-0.3	98	0	5	0	10.6	-0.5
TSC	30	0	7	2.0	1.0	30	0	3	0	6.3	-0.1
TWA	1096	1	2	1.9	-0.2	1094	0	2	0	7.5	1.2
UAL	81663	1	3	1.7	0.2	81714	0	2	0	7.7	1.1
ULE	76	0	0	1.1	-0.3	76	0	0	0	7.3	0.0

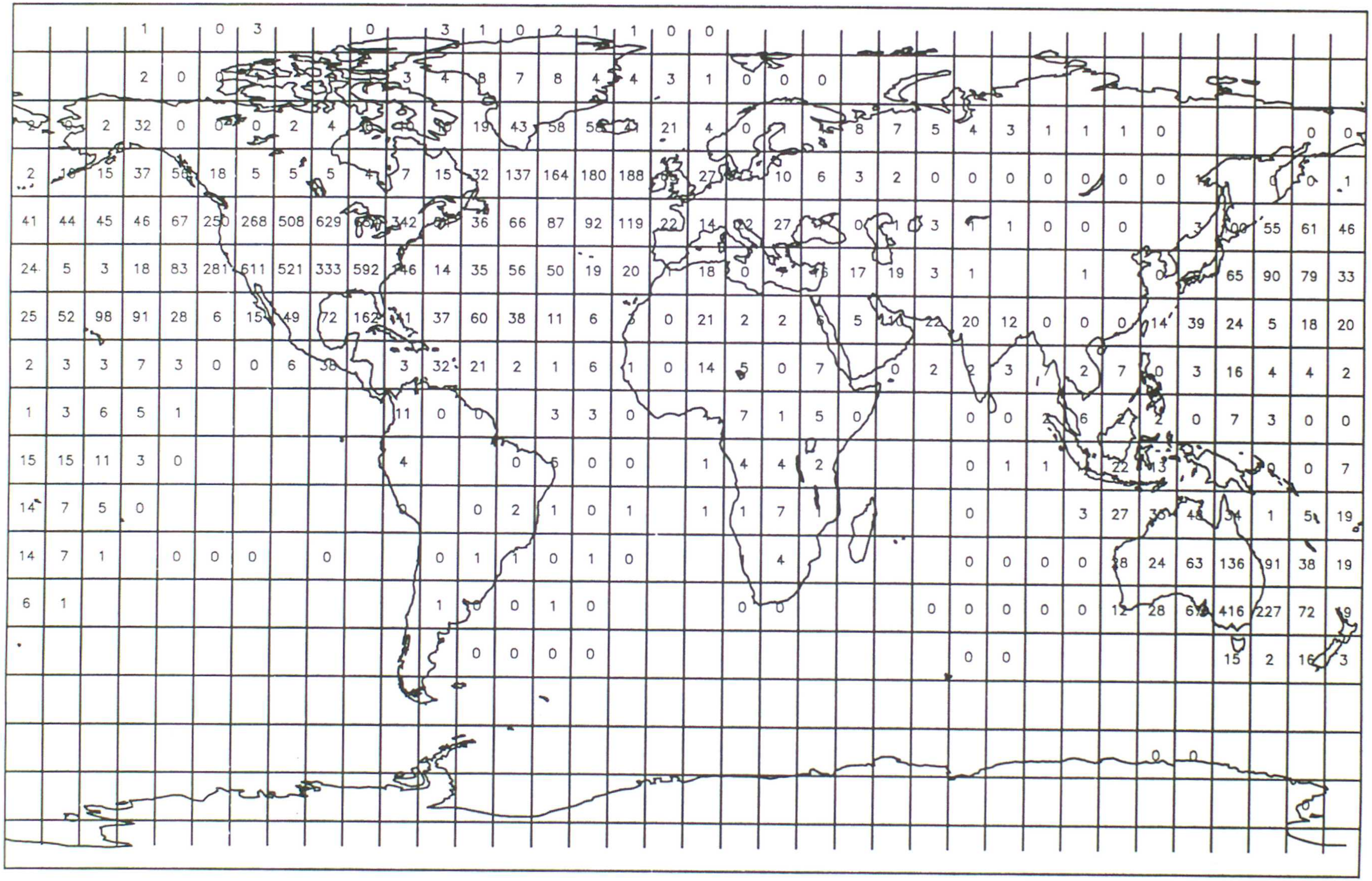
		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
UPS	760	2	9	1.8	-0.2	772	0	8	0	8.6	1.2
USA	185	1	3	1.8	-0.5	185	0	5	0	8.1	1.4
VIA	499	2	2	1.8	0.5	506	0	2	0	8.1	1.0
VIR	159	0	3	1.9	-0.4	161	0	1	0	7.8	1.2
VRG	20	5	0	1.3	0.6	20	0	0	0	7.8	1.9
VSP	80	3	3	2.1	0.4	85	0	1	0	10.1	0.5
WOA	51	0	2	2.2	1.0	51	0	4	0	13.1	3.4
AN	25665	0	2	1.4	0.1	25439	0	2	0	6.8	1.0
BA	16053	0	26	1.6	0.5	16033	0	26	0	7.3	1.2
DL	1143	2	100	3.2	0.9	1143	45	100	0	34.9	0.3
FJ	20	5	5	1.5	0.8	20	0	0	0	7.9	3.7
KL	12258	1	28	2.1	1.3	12251	0	10	0	7.9	1.5
LH	3582	0	4	1.8	-0.3	3542	0	24	1	7.2	1.0
NW	49584	0	2	1.7	0.2	49584	0	2	0	7.3	1.3
QF	12118	0	1	1.2	0.2	12104	0	1	0	6.8	1.2
M	273	2	98	3.5	0.9	277	1	98	0	12.8	2.6
N	464	1	4	2.6	0.3	468	0	4	0	10.2	1.3

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

APRIL 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3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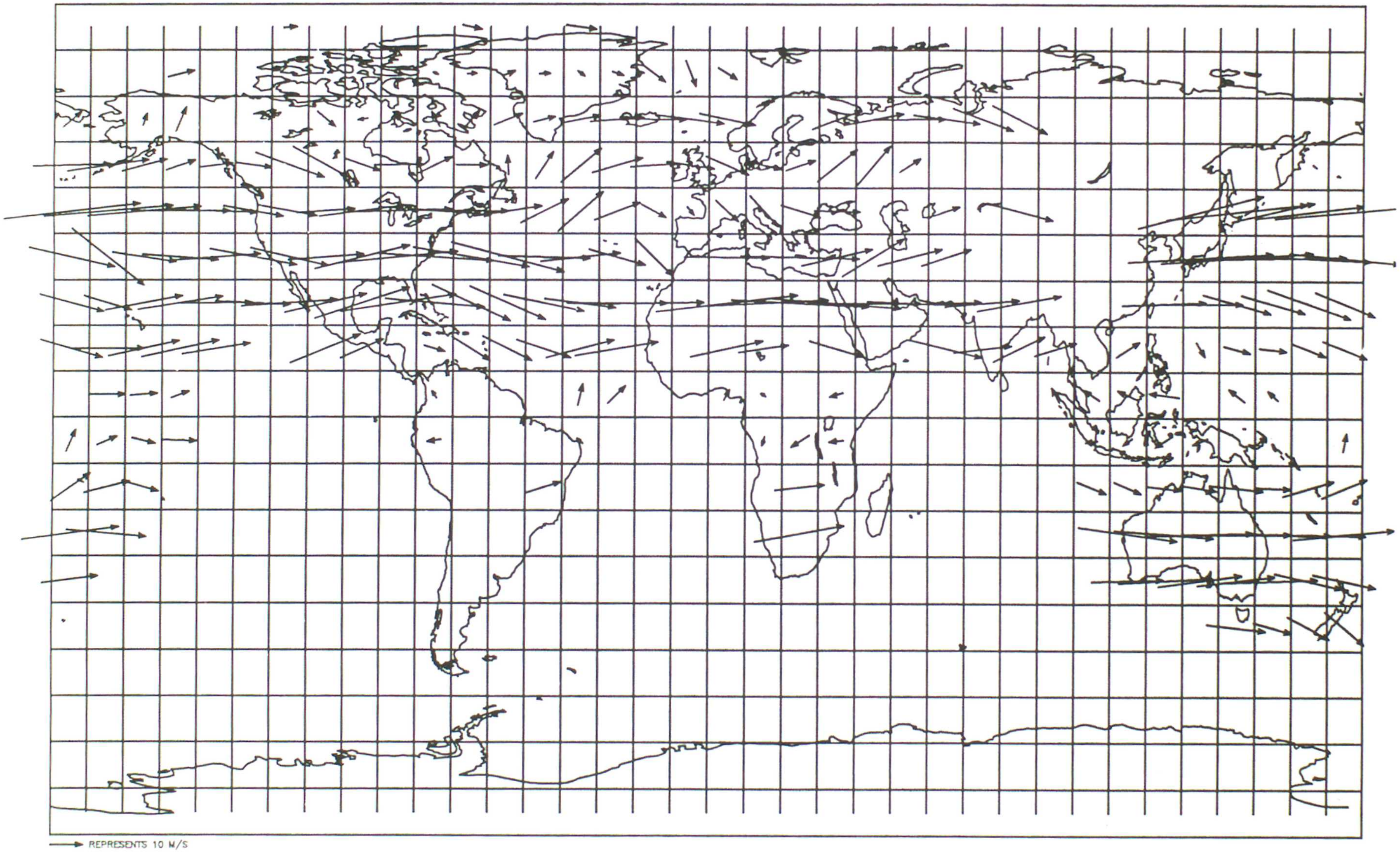
2 10 15 37 56 18 5 5 5 4 7 15 32 137 164 180 188 65 27 13 10 6 3 2 0 0 0 0 0 0 0 14 0 0 1
41 44 45 46 67 250 268 508 629 680 342 51 36 66 87 92 119 22 14 22 27 7 0 1 3 1 1 0 0 0 3 100 55 61 46
24 5 3 18 83 281 611 521 333 592 146 14 35 56 50 19 20 1 18 0 7 15 17 19 3 1 1 0 65 90 79 33
25 52 98 91 28 6 15 49 72 162 41 37 60 38 11 6 3 0 21 2 2 6 5 10 22 20 12 0 0 0 14 39 24 5 18 20
2 3 3 7 3 0 0 6 38 3 32 21 2 1 6 1 0 14 5 0 7 0 2 2 3 7 2 7 0 3 16 4 4 2
1 3 6 5 1 11 0 0 3 3 0 7 1 5 0 0 0 2 6 2 2 0 7 3 0 0
15 15 11 3 0 4 0 5 0 0 1 4 4 2 0 1 1 1 22 13 7 0 0 7
14 7 5 0 0 2 1 0 1 1 1 7 1 0 3 27 35 48 34 1 5 19
14 7 1 0 0 0 0 0 1 1 0 1 0 4 0 0 0 0 38 24 63 136 91 38 19
6 1 1 10 0 1 0 0 0 0 0 0 0 0 0 12 28 67 416 227 72 19
0 0 0 0 0 0 15 2 16 3
0 0

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA FIGURE 4
APRIL 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



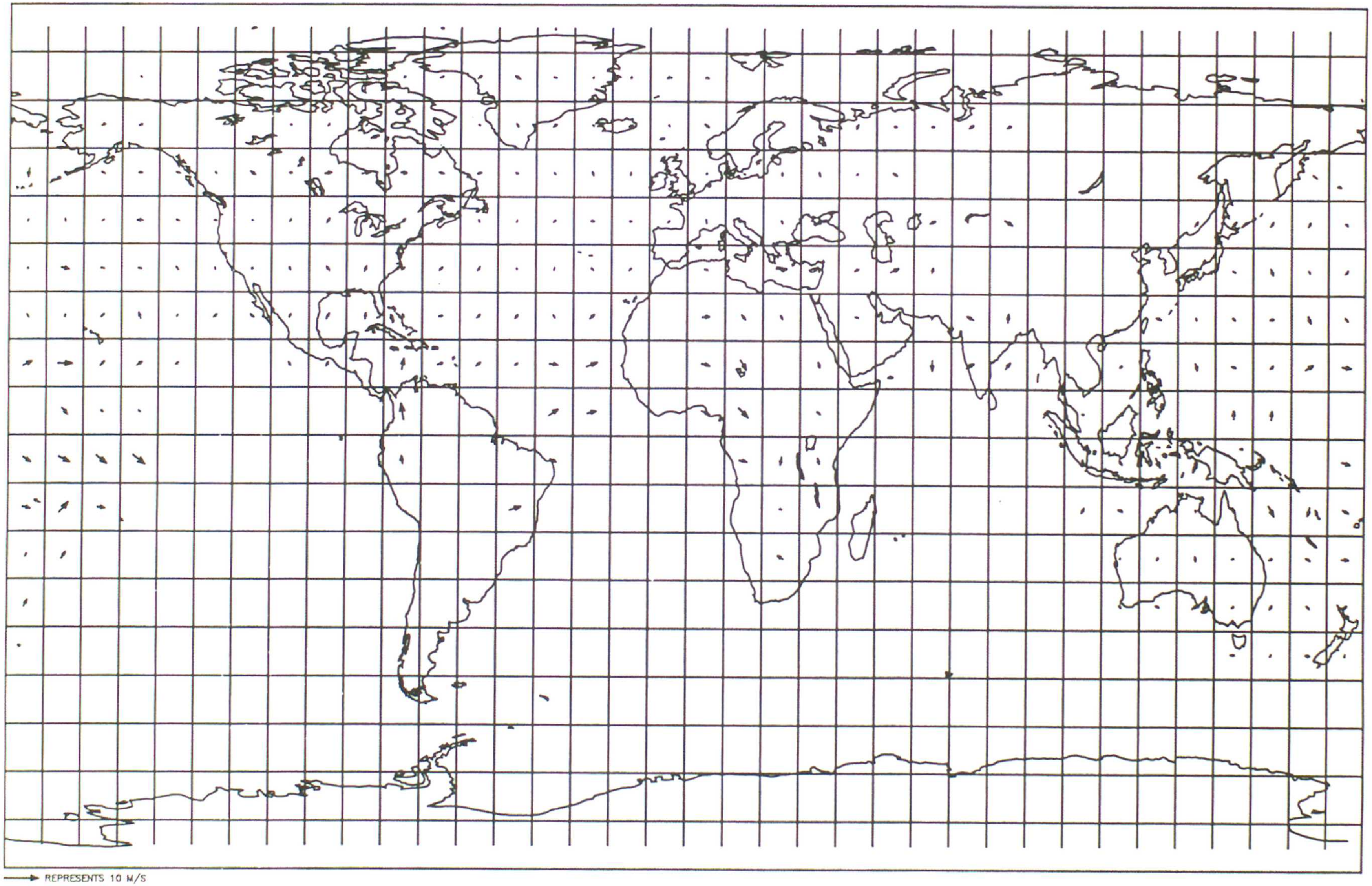
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

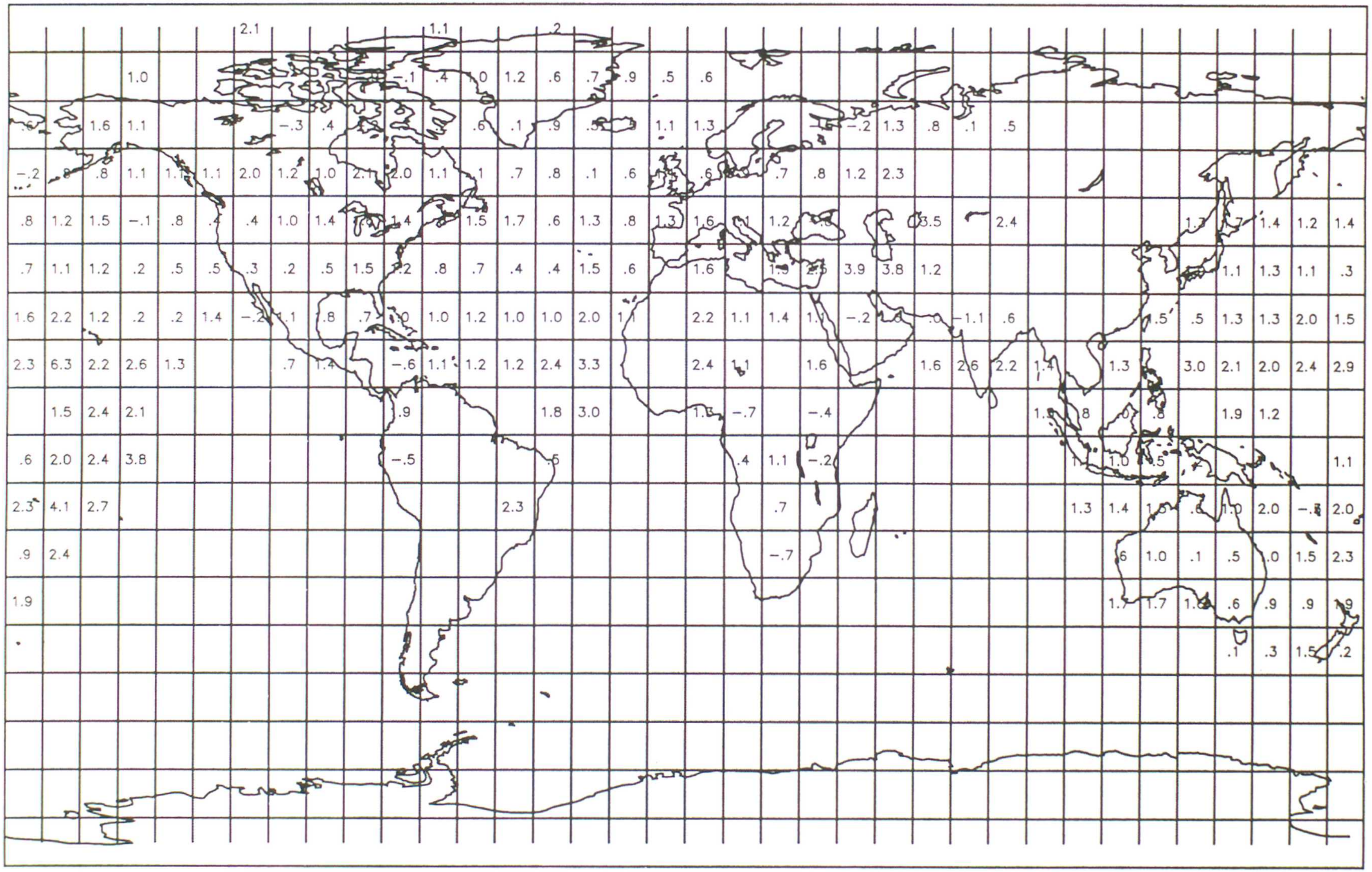
APRIL 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
APRIL 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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1.0 –.1 .4 .0 1.2 .6 .7 .9 .5 .6
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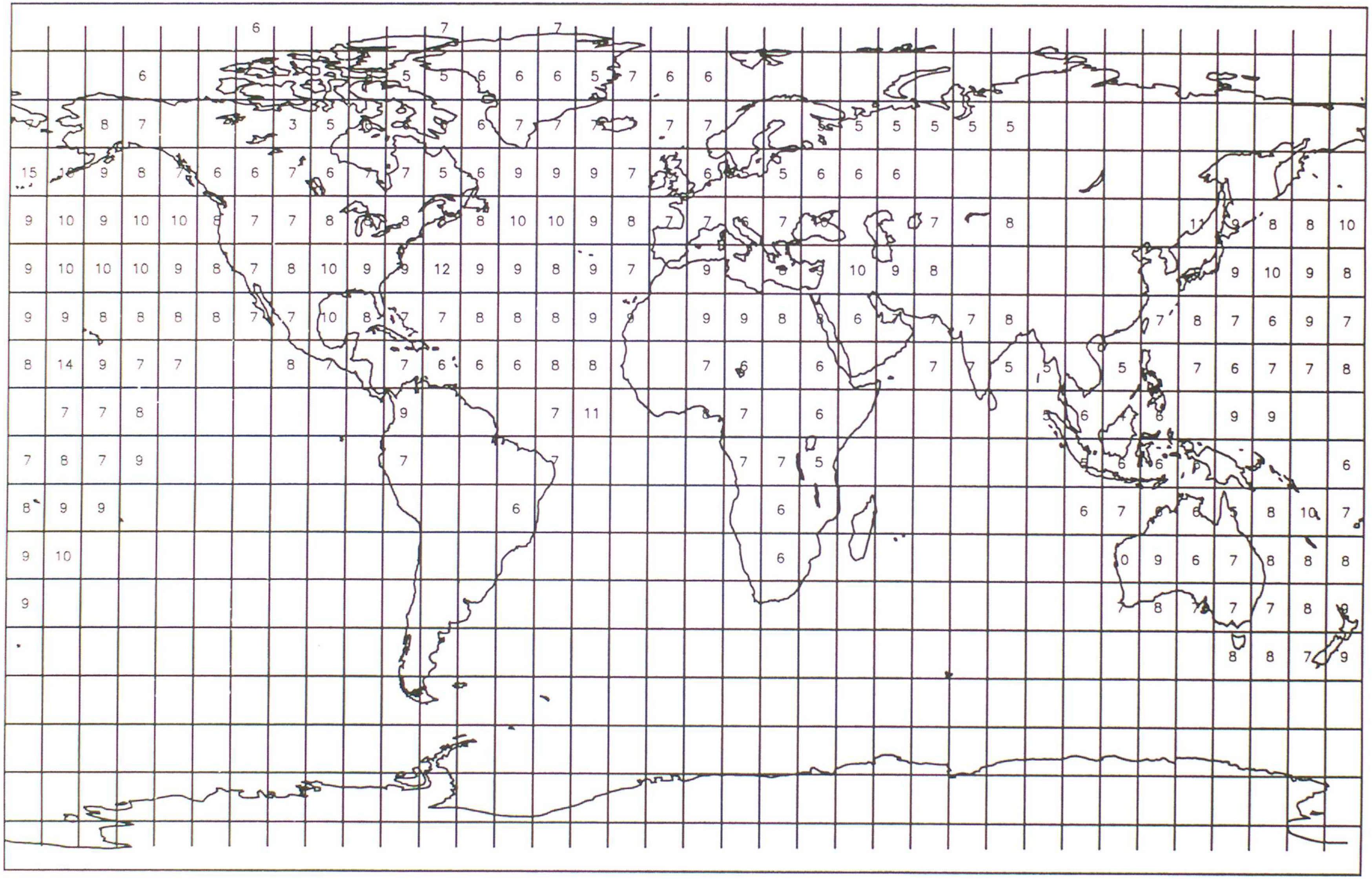
–.2 .8 .8 1.1 1.1 1.1 2.0 1.2 1.0 2.1 2.0 1.1 .1 .7 .8 .1 .6 .6 .7 .8 1.2 2.3
.8 1.2 1.5 –.1 .8 .4 .4 1.0 1.4 1.4 1.5 1.7 .6 1.3 .8 1.3 1.6 1.1 1.2 3.5 2.4 1.7 1.4 1.2 1.4
.7 1.1 1.2 .2 .5 .5 .3 .2 .5 1.5 .2 .8 .7 .4 .4 1.5 .6 1.6 1.5 2.5 3.9 3.8 1.2 1.1 1.3 1.1 .3
1.6 2.2 1.2 .2 .2 1.4 –.2 1.1 .8 .7 .0 1.0 1.2 1.0 1.0 2.0 1.1 2.2 1.1 1.4 1.1 –.2 .0 –1.1 .6 .5 .5 1.3 1.3 2.0 1.5
2.3 6.3 2.2 2.6 1.3 .7 1.4 –.6 1.1 1.2 1.2 2.4 3.3 2.4 1.1 1.6 1.6 2.6 2.2 1.4 1.3 3.0 2.1 2.0 2.4 2.9
1.5 2.4 2.1 .9 1.8 3.0 1.3 –.7 –.4 1.8 .8 .0 .8 1.9 1.2
.6 2.0 2.4 3.8 –.5 .5 .4 1.1 –.2 1.0 .5 1.1
2.3 4.1 2.7 2.3 .7 1.3 1.4 1.5 .6 1.0 2.0 –.3 2.0
.9 2.4 –.7 .6 1.0 .1 .5 .0 1.5 2.3
1.9 1.7 1.7 1.6 .6 .9 .9 1.9
.1 .3 1.5 .2

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
APRIL 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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6 5 5 6 6 6 5 7 6 6 6 6
8 7 3 5 6 7 7 7 7 7 5 5 5 5 5 5
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9 10 9 10 10 8 7 7 8 8 8 8 10 10 9 8 7 7 6 7 10 7 8 11 9 8 8 10
9 10 10 10 9 8 7 8 10 9 9 12 9 9 8 9 7 9 8 9 10 9 8 9 10 9 8
9 9 8 8 8 8 7 7 10 8 7 7 8 8 8 9 9 9 9 8 8 6 7 7 7 8 7 8 7 6 9 7
8 14 9 7 7 8 7 7 6 6 6 8 8 7 6 6 7 7 5 5 5 7 6 7 7 8
7 7 8 9 7 11 8 7 6 5 6 4 6 9 9
7 8 7 9 7 7 7 7 5 6 6 6 6 6 6
8 9 9 6 6 6 7 6 6 5 8 10 7
9 10 6 0 9 6 7 8 8 8
9 7 8 7 7 7 8 9
8 8 7 9

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA :≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
32165	12	Z	200	44/ 146	16	0	52.3	80.4	95.9	6
37018	12	Z	70	44/ 39	26	0	38.8	143.5	148.6	7
42027	00	Z	100	34/ 75	12	0	132.2	2.3	132.2	4
42027	12	Z	200	34/ 75	18	0	81.7	53.4	97.6	5
42101	00	Z	100	30/ 76	13	0	132.6	-51.9	142.4	5
42314	00	Z	200	27/ 95	17	0	97.1	-60.2	114.2	5
42314	12	Z	200	27/ 95	11	2	98.5	-71.3	121.6	4
42339	00	Z	200	26/ 73	16	2	116.8	18.7	118.3	5
42361	00	Z	200	26/ 78	16	1	81.2	-58.9	100.3	7
42361	12	Z	150	26/ 78	20	0	102.3	-37.3	108.9	7
42369	00	Z	200	27/ 81	20	0	95.2	34.8	101.4	6
42369	12	Z	150	27/ 81	14	1	112.2	30.7	116.3	6
42379	00	Z	50	27/ 83	19	3	170.9	105.6	200.9	10
42379	12	Z	50	27/ 83	17	3	195.6	79.3	211.1	10
42397	00	Z	150	27/ 88	10	1	135.4	-6.6	135.5	5
42397	12	Z	200	27/ 88	13	1	126.9	32.1	130.9	6
42492	00	Z	70	26/ 85	11	0	208.0	10.1	208.2	7
42647	00	Z	200	23/ 73	23	1	75.4	-59.9	96.3	5
42647	12	Z	30	23/ 73	6	6	94.3	264.3	280.6	8
42667	00	Z	300	23/ 77	18	0	83.8	8.4	84.2	5
42667	12	Z	200	23/ 77	14	0	115.5	-30.9	119.6	4
42701	00	Z	150	23/ 85	11	0	90.2	57.9	107.2	4
42724	12	Z	250	24/ 91	17	0	82.6	41.2	92.3	5
42971	00	Z	30	20/ 86	17	1	199.3	178.5	267.5	8
42971	12	Z	50	20/ 86	20	2	169.9	70.7	184.0	5
43014	00	Z	200	20/ 75	19	1	66.1	-110.4	128.7	5
43041	00	Z	100	19/ 82	11	2	113.7	-70.6	133.9	4
43128	00	Z	30	17/ 78	11	2	189.0	135.9	232.8	7
43128	12	Z	50	17/ 78	13	1	95.9	210.5	231.3	10
43150	00	Z	100	18/ 83	10	1	119.6	71.0	139.1	7
43150	12	Z	250	18/ 83	25	0	77.8	9.1	78.3	6
43185	00	Z	70	16/ 81	10	2	137.1	85.8	161.7	7
43185	12	Z	100	16/ 81	21	0	113.0	32.0	117.4	5
43192	00	Z	150	15/ 74	25	1	97.0	-60.6	114.3	7
43279	00	Z	150	13/ 80	25	0	86.7	-60.3	105.6	5
43279	12	Z	30	13/ 80	11	0	127.5	163.9	207.6	4
43285	00	Z	200	13/ 75	17	1	76.2	-56.9	95.2	7
43285	12	Z	50	13/ 75	16	0	130.0	173.4	216.7	7
43295	12	Z	150	13/ 78	15	0	80.5	97.3	126.2	4
43333	00	Z	70	12/ 93	10	0	208.9	47.3	214.2	5
43346	00	Z	50	11/ 80	13	0	188.5	63.4	198.9	5
43346	12	Z	30	11/ 80	16	1	236.9	100.7	257.4	5
43369	00	Z	100	8/ 73	17	1	152.8	-70.0	168.0	8
43369	12	Z	70	8/ 73	12	0	134.6	-41.5	140.8	4
43371	00	Z	100	8/ 77	10	1	133.4	-88.1	159.8	6
44373	12	Z	250	44/ 104	16	1	44.9	128.0	135.6	5
54337	12	Z	200	41/ 121	20	0	63.6	64.1	90.3	6
54497	00	Z	50	40/ 124	19	0	63.9	166.2	178.0	6
54497	12	Z	200	40/ 124	26	0	37.3	69.7	79.0	7
57957	00	Z	100	25/ 110	28	0	49.8	120.1	130.0	4
57957	12	Z	100	25/ 110	30	0	36.5	123.3	128.6	5
58027	00	Z	70	34/ 117	25	0	49.1	119.1	128.8	5
58238	00	Z	200	32/ 119	28	0	30.1	75.3	81.0	4
58665	00	Z	70	29/ 121	27	0	39.6	124.0	130.1	4
60360	12	Z	300	37/ 8	6	12	58.2	-140.3	151.9	8
62306	12	Z	30	31/ 27	5	7	17.9	416.4	416.8	9
62378	12	Z	70	30/ 31	10	0	83.9	207.0	223.3	4
63450	12	Z	700	9/ 39	18	1	24.1	35.7	43.1	5
70219	00	Z	30	61/-162	28	0	56.6	267.9	273.8	4
71203	00	Z	500	50/ -12	13	16	89.6	16.0	91.1	10

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
71203	12	Z	1000	50/ -12	22	8	52.6	-7.8	53.2	10
72274	00	Z	30	32/-111	22	0	36.2	214.9	217.9	4
96163	00	Z	70	-1/ 100	11	1	130.5	189.9	230.4	7
96237	00	Z	100	-2/ 106	19	0	88.5	138.4	164.2	6
97014	00	Z	50	2/ 125	10	0	135.4	118.6	180.0	5

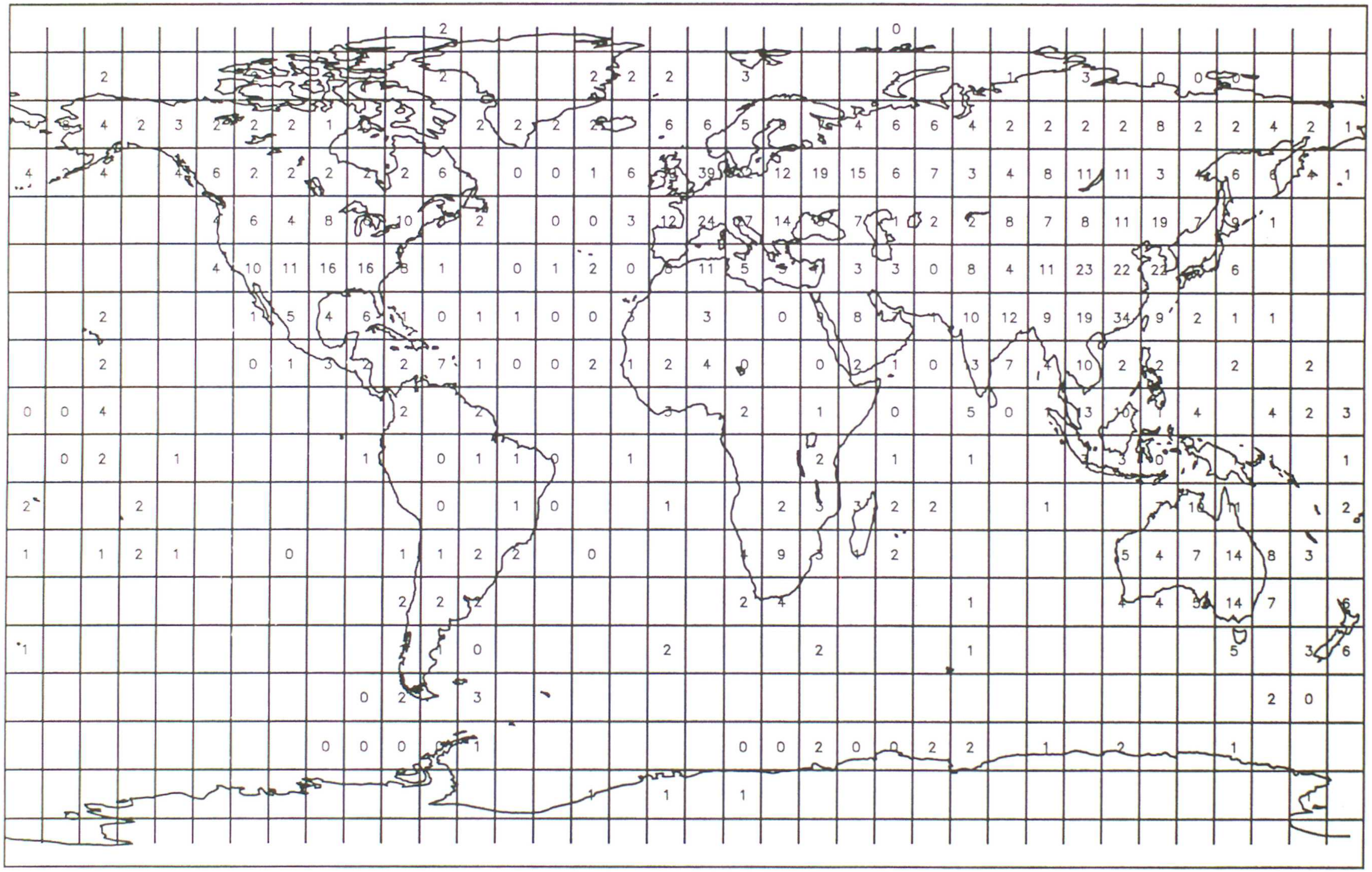
AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – APRIL 1995

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1378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4 6 4 8 6 10 2 0 0 3 12 24 27 14 8 7 1 2 2 8 7 8 11 19 7 9 1
4 10 11 16 16 8 1 0 1 2 0 6 11 5 5 1 3 3 0 8 4 11 23 22 22 6
2 1 5 4 6 1 0 1 1 0 0 3 3 0 5 8 7 1 10 12 9 19 34 9 2 1 1
2 0 1 3 2 2 7 1 0 0 2 1 2 4 0 0 2 1 0 3 7 4 10 2 2 2 2
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0 2 1 1 0 1 1 0 1 2 1 1 3 3 0 1 1
2 2 0 1 0 1 2 3 3 2 2 1 7 16 11 2
1 1 2 1 0 1 1 2 2 0 4 9 3 1 2 5 4 7 14 8 3
2 2 2 2 4 1 4 4 53 14 7 6
1 1 0 2 2 1 5 3 6
0 2 3 2 0
0 0 0 1 0 0 2 0 0 2 2 1 2 1
1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	:≥ 10 observations and ≥ 15 $m\ s^{-1}$ RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

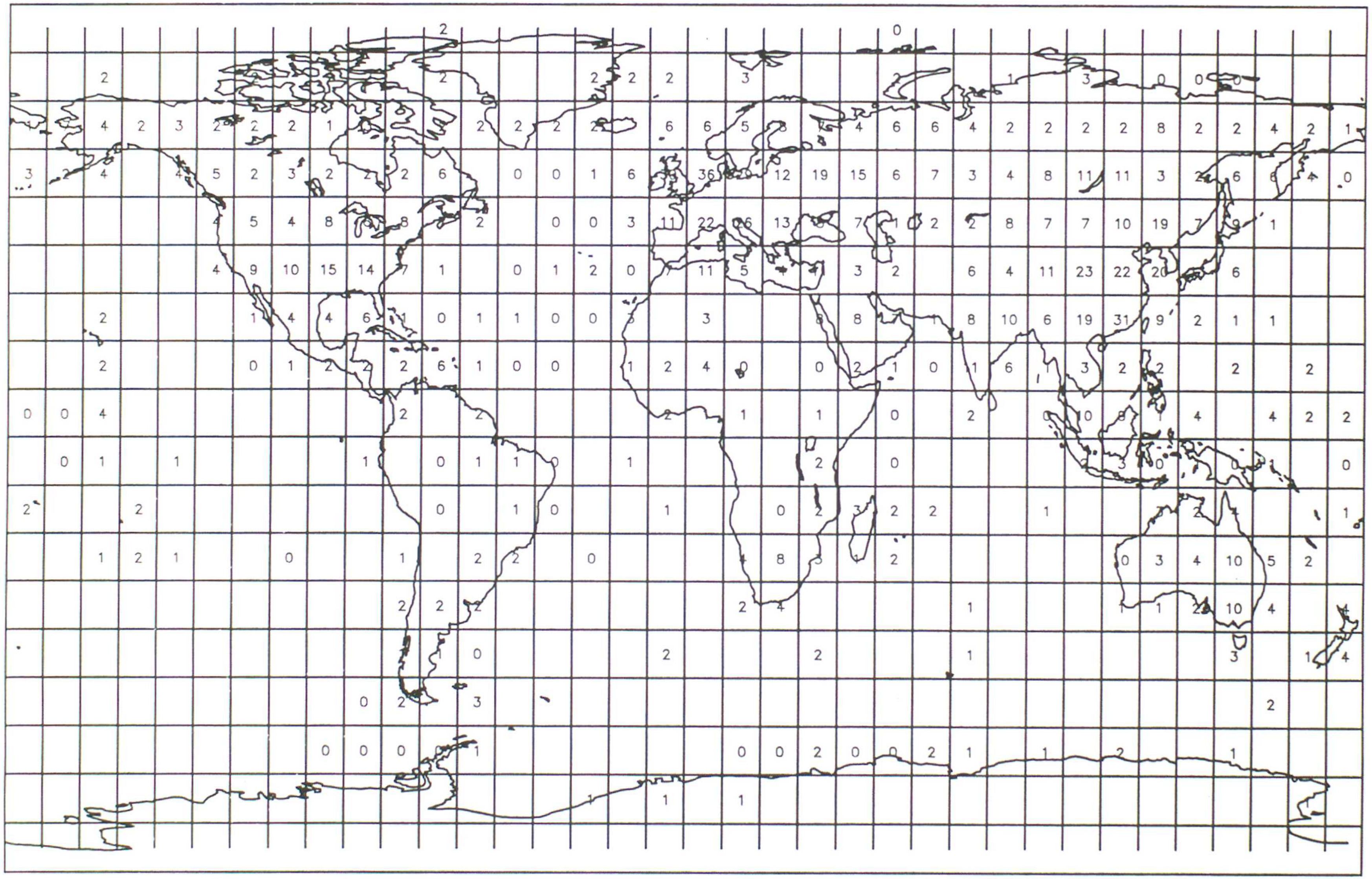
WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
40265	00	V	100	32/ 36	19	0	26	-2.1	17.7	15.1	1
41780	00	V	150	25/ 67	17	0	0	-16.6	-2.2	17.1	1
42410	00	V	200	26/ 92	21	0	4	5.4	1.5	15.4	1
42875	12	V	250	21/ 82	12	0	8	7.0	0.7	17.5	1
60630	12	V	150	27/ 2	27	0	11	-12.9	-3.1	19.7	2
71203	00	V	250	50/ -12	29	0	65	9.2	-0.8	18.8	2
71203	12	V	250	50/ -12	30	0	60	8.2	-1.1	22.3	3
82965	12	V	200	-10/ -56	11	0	27	-8.1	0.7	19.9	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – APRIL 1995 FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1227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4 5 4 8 8 2 0 0 3 11 22 26 13 7 1 2 2 8 7 7 10 19 7 9 1
4 9 10 15 14 7 1 0 1 2 0 11 5 4 3 2 6 4 11 23 22 20 6
2 1 4 4 6 1 0 1 1 0 0 3 3 8 8 7 1 8 10 6 19 31 9 2 1 1
2 0 1 2 2 2 6 1 0 0 1 2 4 0 0 2 1 0 1 6 1 3 2 2 2 2
0 0 4 2 2 2 1 1 0 2 0 8 1 4 4 2 2
0 1 1 1 0 1 1 0 1 2 0 3 0 0 1 0
2 2 0 1 0 1 0 2 3 2 2 1 2 1 1
1 2 1 0 1 2 2 0 4 8 3 1 2 0 3 4 10 5 2
2 2 2 2 4 1 1 1 22 10 4 4
1 0 2 2 1 3 1 4
0 2 3 2
0 0 0 0 1 0 0 2 0 0 2 1 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and

ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
10272	00	DD	53/ 13	12	-13.0	3.9	8.7
10272	12	DD	53/ 13	12	-10.5	4.0	9.9
10828	00	DD	48/ 9	12	12.7	3.7	9.8
10828	12	DD	48/ 9	9	13.3	3.2	6.8
24641	12	DD	64/ 122	17	11.4	5.6	13.6
29282	00	DD	58/ 97	21	18.5	8.0	20.7
40265	00	DD	32/ 36	24	-34.8	3.9	23.4
42339	00	DD	26/ 73	20	18.4	2.6	12.4
42339	12	DD	26/ 73	17	14.7	5.5	14.0
42397	12	DD	27/ 88	14	-11.5	4.7	12.3
48455	00	DD	14/ 101	8	-20.4	9.7	26.7
52889	12	DD	36/ 104	28	-11.1	10.0	12.9
53772	00	DD	38/ 113	28	-11.8	3.3	8.2
53772	12	DD	38/ 113	30	-11.8	2.6	8.4
53915	12	DD	36/ 107	29	-10.2	4.5	10.0
57816	00	DD	26/ 107	26	-12.0	1.9	12.8
57816	12	DD	26/ 107	25	-16.1	1.8	12.3
58606	00	DD	29/ 116	27	-12.5	4.6	8.9
58606	12	DD	29/ 116	29	-13.3	4.0	7.4
60571	12	DD	32/ -2	21	13.9	4.5	13.9
78866	12	DD	18/ -63	12	12.9	3.5	15.3
83612	12	DD	-20/ -55	18	10.6	8.4	21.8
96315	12	DD	5/ 115	13	10.5	9.9	20.2
96471	12	DD	6/ 116	17	15.9	9.4	22.8

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

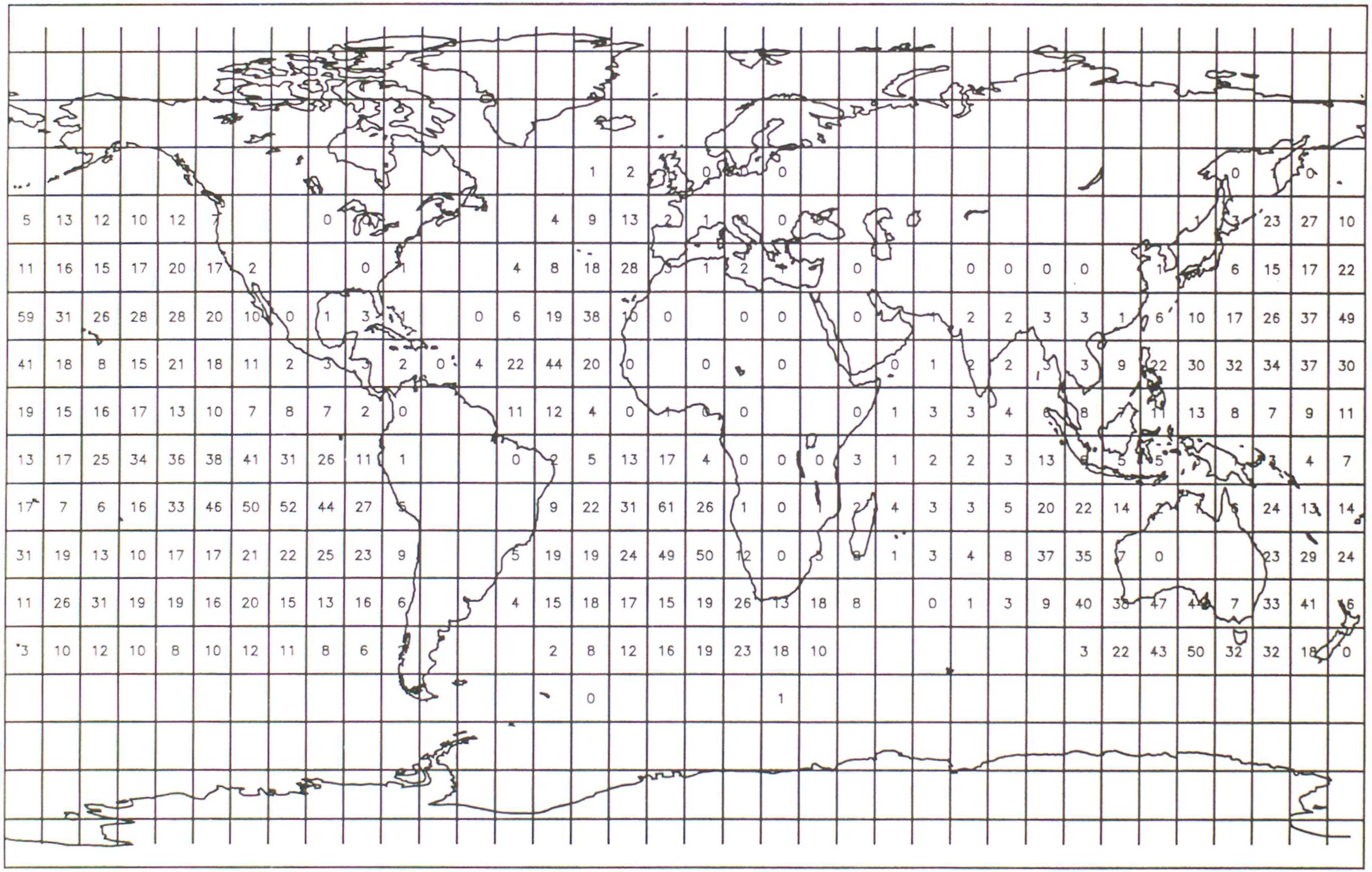
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
APRIL 1995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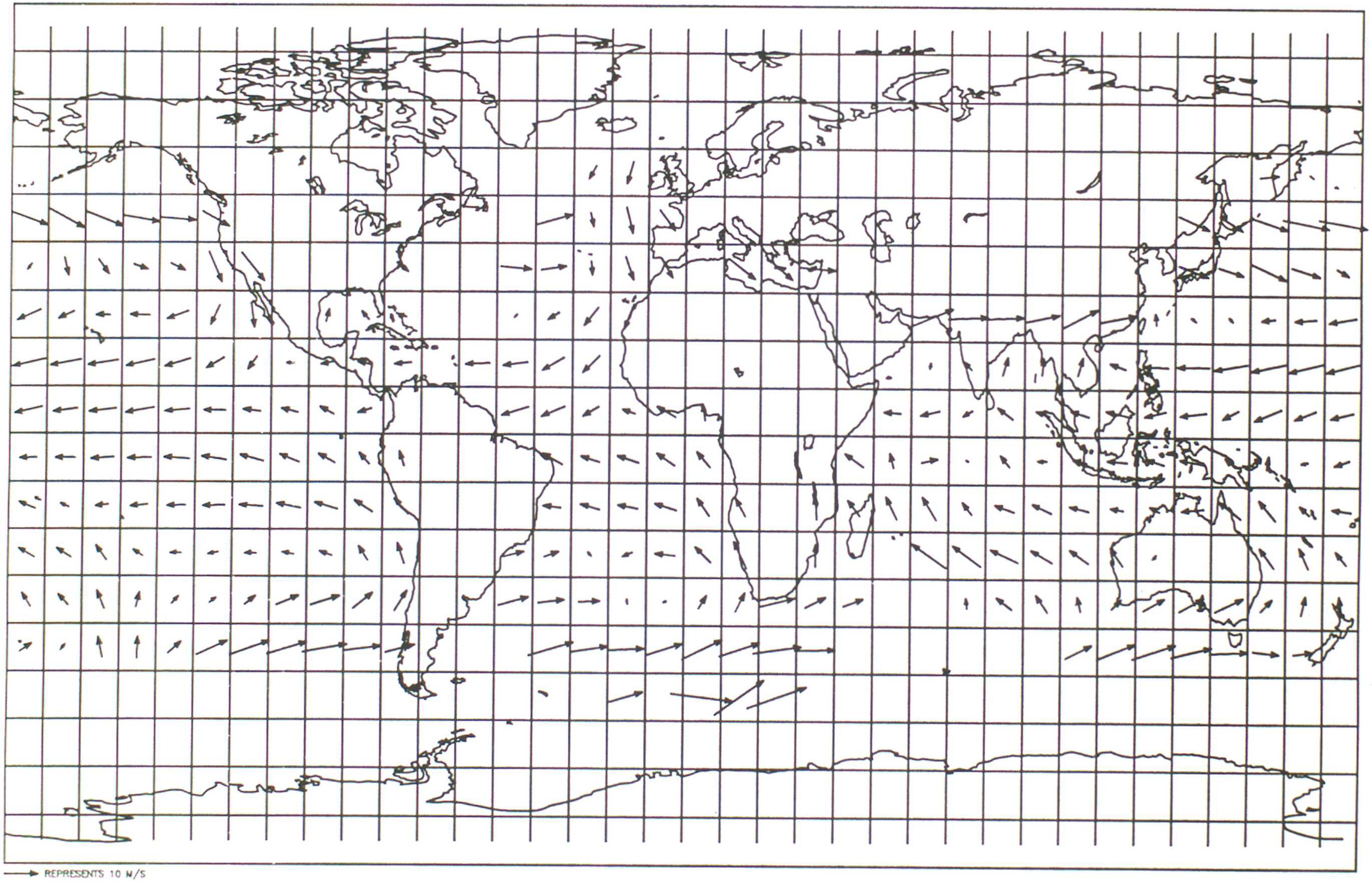
5 13 12 10 12 7 0 0 4 9 13 2 1 0 0 1 3 23 27 10
11 16 15 17 20 17 2 0 1 4 8 18 28 5 1 2 1 0 0 0 0 0 1 6 15 17 22
59 31 26 28 28 20 10 0 1 3 1 0 6 19 38 10 0 0 0 0 1 2 2 3 3 1 6 10 17 26 37 49
41 18 8 15 21 18 11 2 3 3 2 0 4 22 44 20 0 0 0 0 1 2 2 3 3 9 22 30 32 34 37 30
19 15 16 17 13 10 7 8 7 2 0 11 12 4 0 1 0 0 0 1 3 3 4 6 8 7 11 13 8 7 9 11
13 17 25 34 36 38 41 31 26 11 1 0 2 5 13 17 4 0 0 0 3 1 2 2 3 13 6 5 5 3 4 7
17 7 6 16 33 46 50 52 44 27 5 9 22 31 61 26 1 0 1 2 4 3 3 5 20 22 14 2 1 5 24 13 14
31 19 13 10 17 17 21 22 25 23 9 5 19 19 24 49 50 12 0 3 8 1 3 4 8 37 35 7 0 23 29 24
11 26 31 19 19 16 20 15 13 16 6 4 15 18 17 15 19 26 13 18 8 0 1 3 9 40 38 47 44 7 33 41 16
3 10 12 10 8 10 12 11 8 6 2 2 8 12 16 19 23 18 10 3 22 43 50 32 32 18 0
0 1

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
APRIL 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11


REPRESENTS 10 M/S

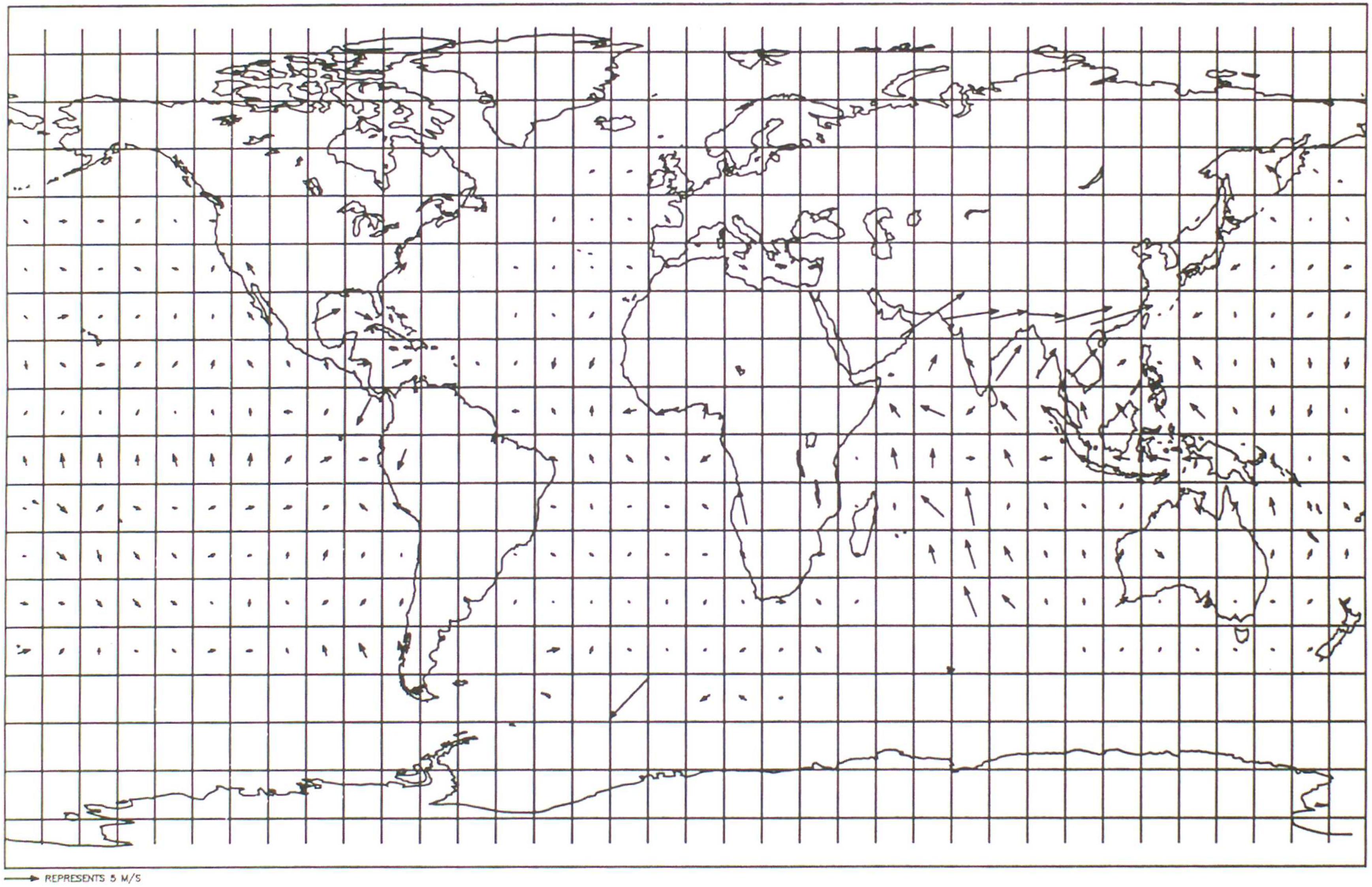
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA

FIGURE 12

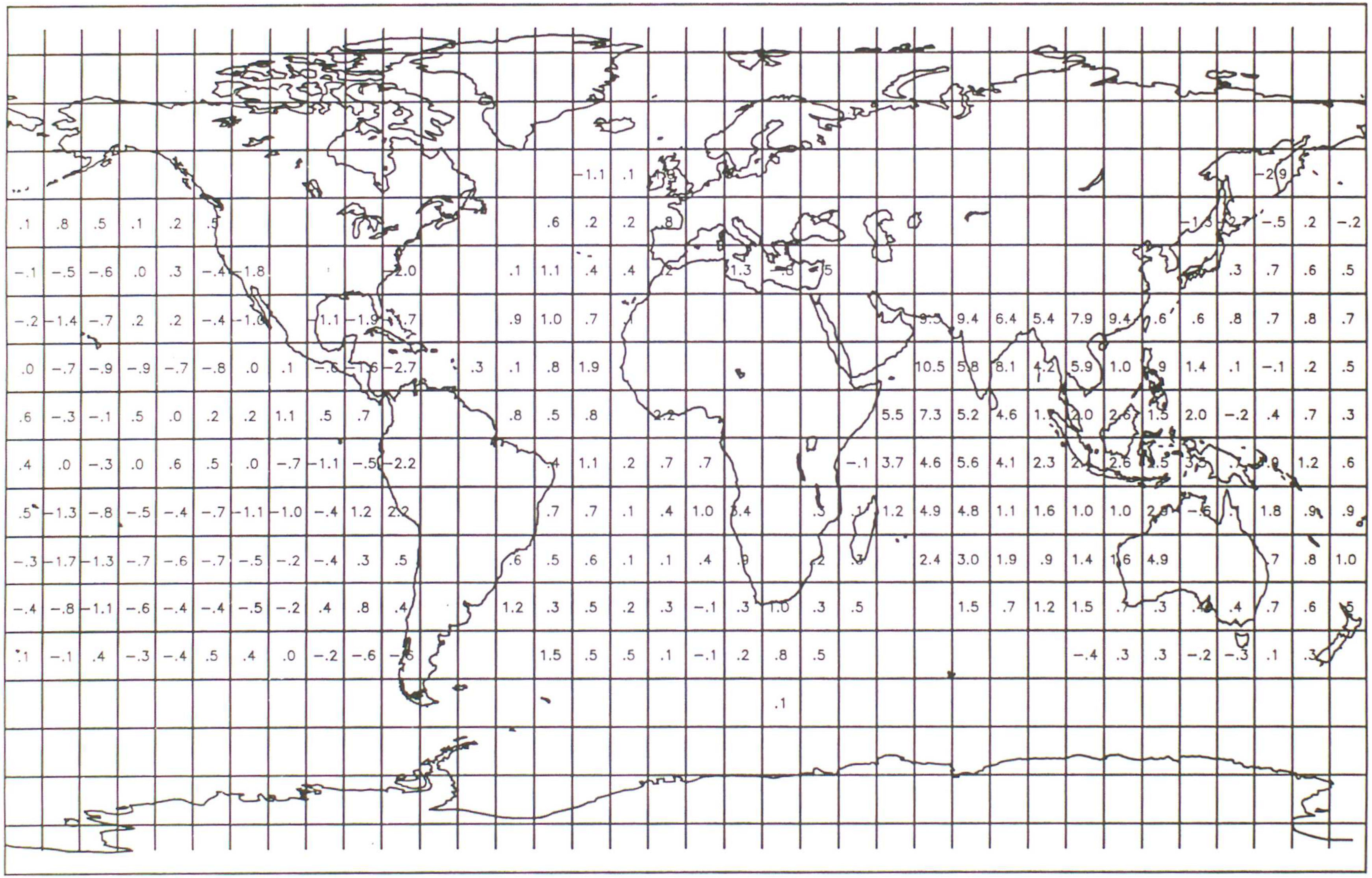
APRIL 1995

ALL OBSERVATIONS

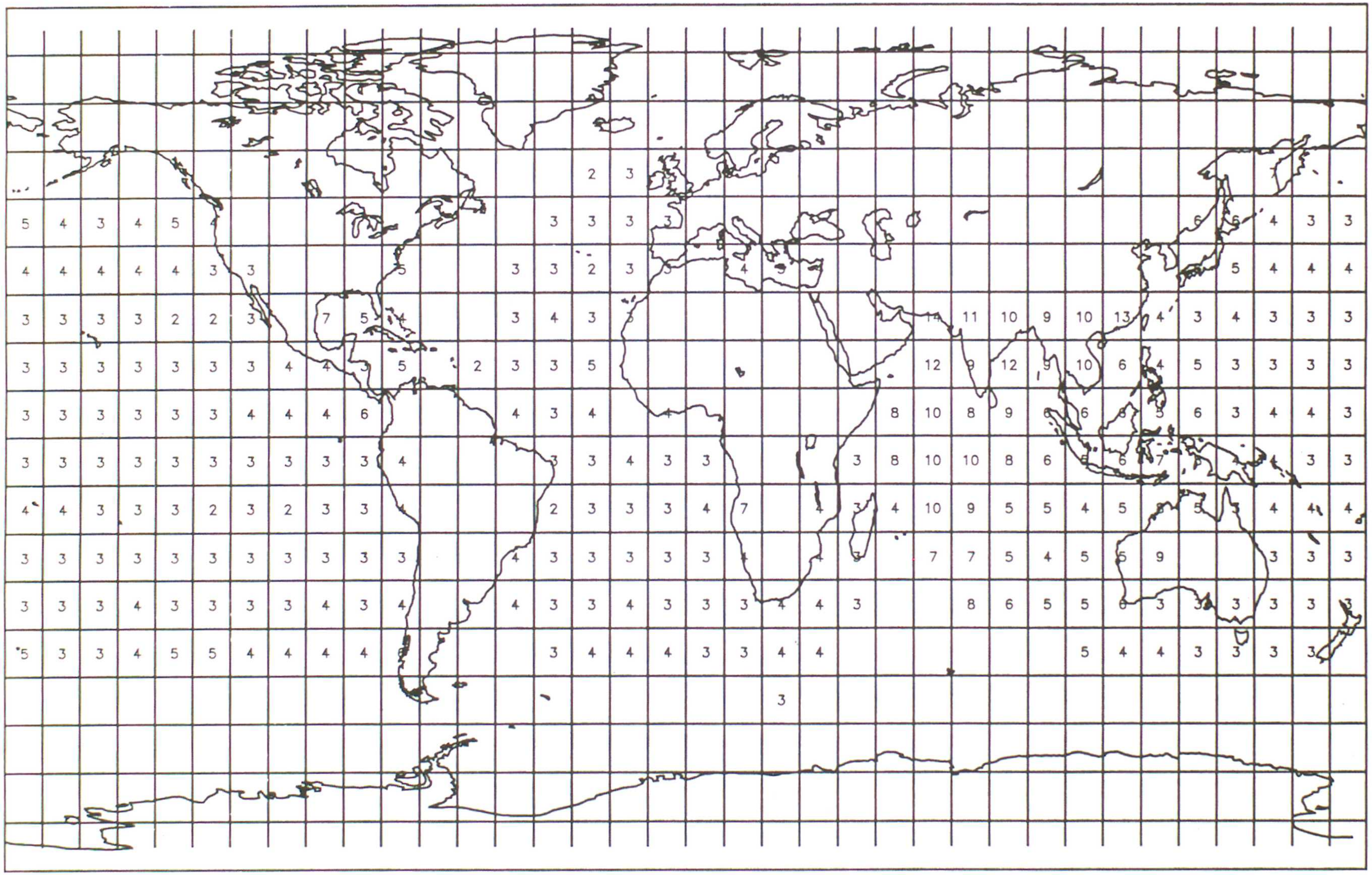
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



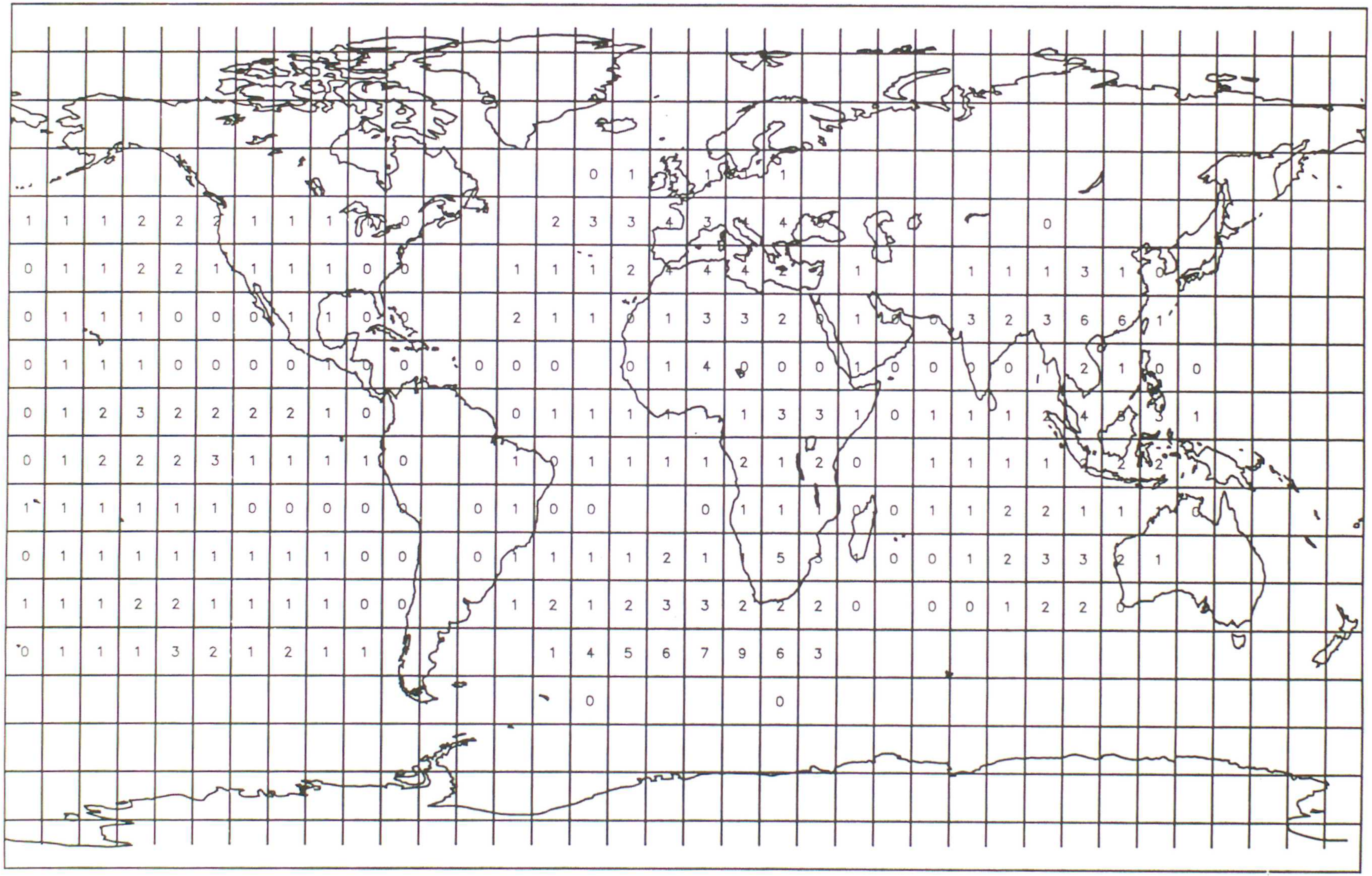
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
APRIL 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.1 .1 -2.9
.1 .8 .5 .1 .2 .5 .6 .2 .2 .8 -1.3 -.5 .2 -.2
-.1 -.5 -.6 .0 .3 -.4 -1.8 -2.0 .1 1.1 .4 .4 .2 1.3 -.8 .5 .3 .7 .6 .5
-.2 -1.4 -.7 .2 .2 -.4 -1.0 -1.1 -1.9 1.7 .9 1.0 .7 9.5 9.4 6.4 5.4 7.9 9.4 .6 .6 .8 .7 .8 .7
.0 -.7 -.9 -.9 -.7 -.8 .0 .1 -.6 -1.6 -2.7 .3 .1 .8 1.9 10.5 5.8 8.1 4.2 5.9 1.0 .9 1.4 .1 -.1 .2 .5
.6 -.3 -.1 .5 .0 .2 .2 1.1 .5 .7 .8 .5 .8 2.2 5.5 7.3 5.2 4.6 2.0 2.6 1.5 2.0 -.2 .4 .7 .3
.4 .0 -.3 .0 .6 .5 .0 -.7 -1.1 -.5 -2.2 .4 1.1 .2 .7 .7 -.1 3.7 4.6 5.6 4.1 2.3 2.6 1.2 .6
.5 -1.3 -.8 -.5 -.4 -.7 -1.1 -1.0 -.4 1.2 2.2 .7 .7 .1 .4 1.0 3.4 1.2 4.9 4.8 1.1 1.6 1.0 1.0 -.6 1.8 .9 .9
-.3 -1.7 -1.3 -.7 -.6 -.7 -.5 -.2 -.4 .3 .5 .6 .5 .6 .1 .1 .4 .9 .2 2.4 3.0 1.9 .9 1.4 1.6 4.9 .7 .8 1.0
-.4 -.8 -1.1 -.6 -.4 -.4 -.5 -.2 .4 .8 .4 1.2 .3 .5 .2 .3 -.1 .3 1.0 .3 .5 1.5 .7 1.2 1.5 .7 .3 .4 .4 .7 .6 .5
.1 -.1 .4 -.3 -.4 .5 .4 .0 -.2 -.6 -.6 1.5 .5 .5 .1 -.1 .2 .8 .5 -.4 .3 .3 -.2 -.3 .1 .3
.1

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
APRIL 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
APRIL 1995



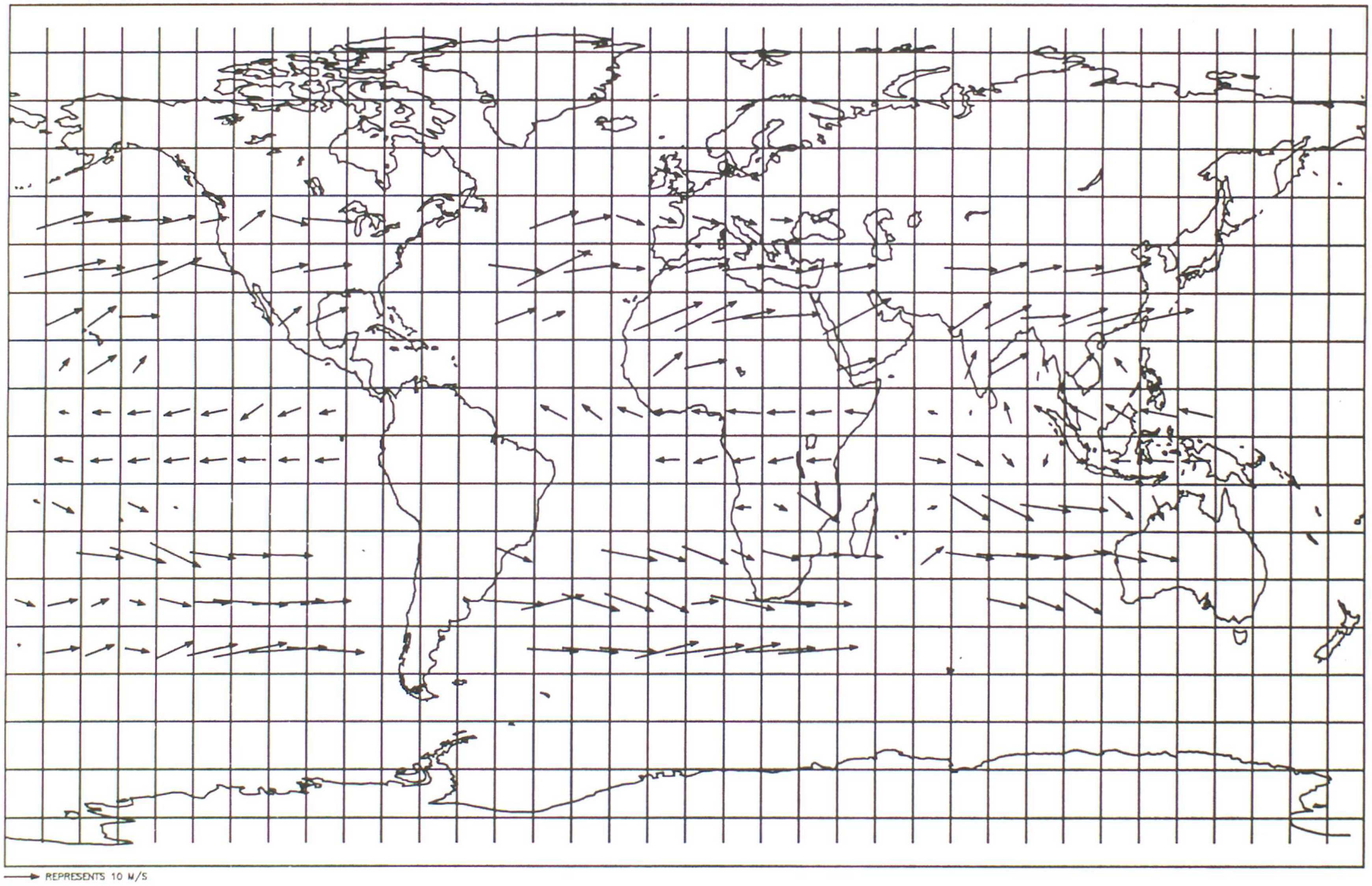
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA

FIGURE 16

APRIL 1995

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

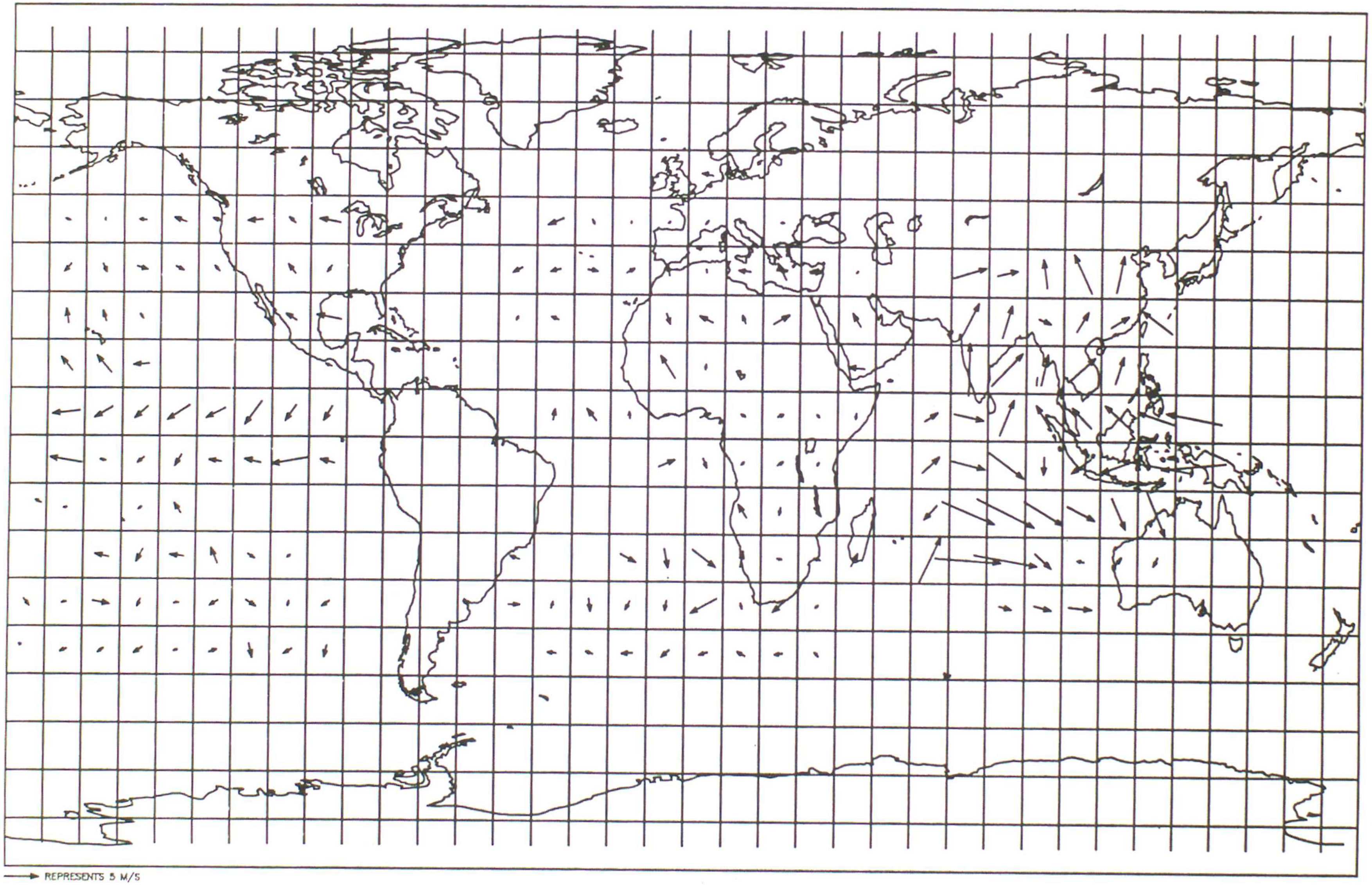
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

APRIL 1995

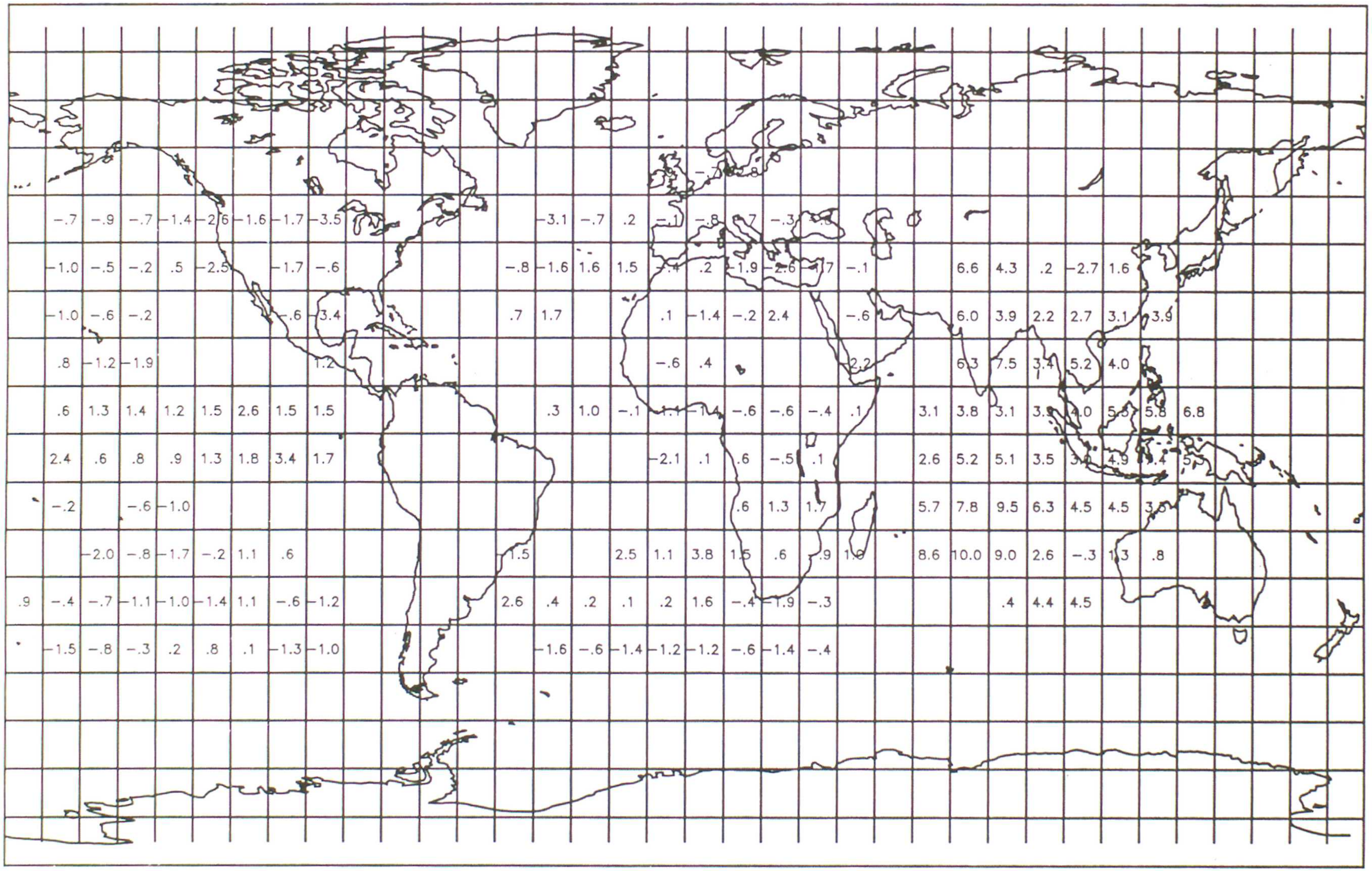
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

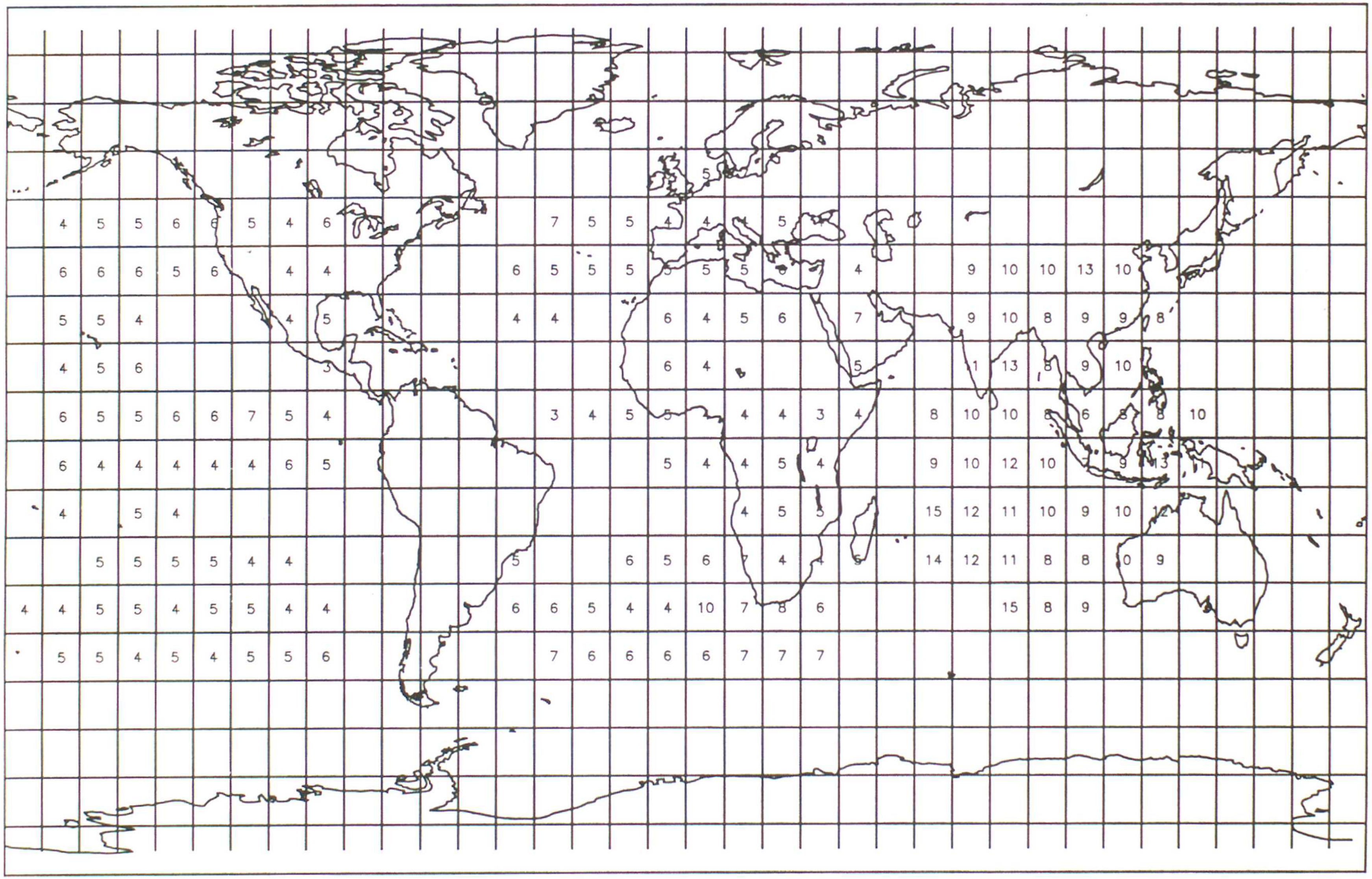
FIGURE 17


REPRESENTS 5 M/S

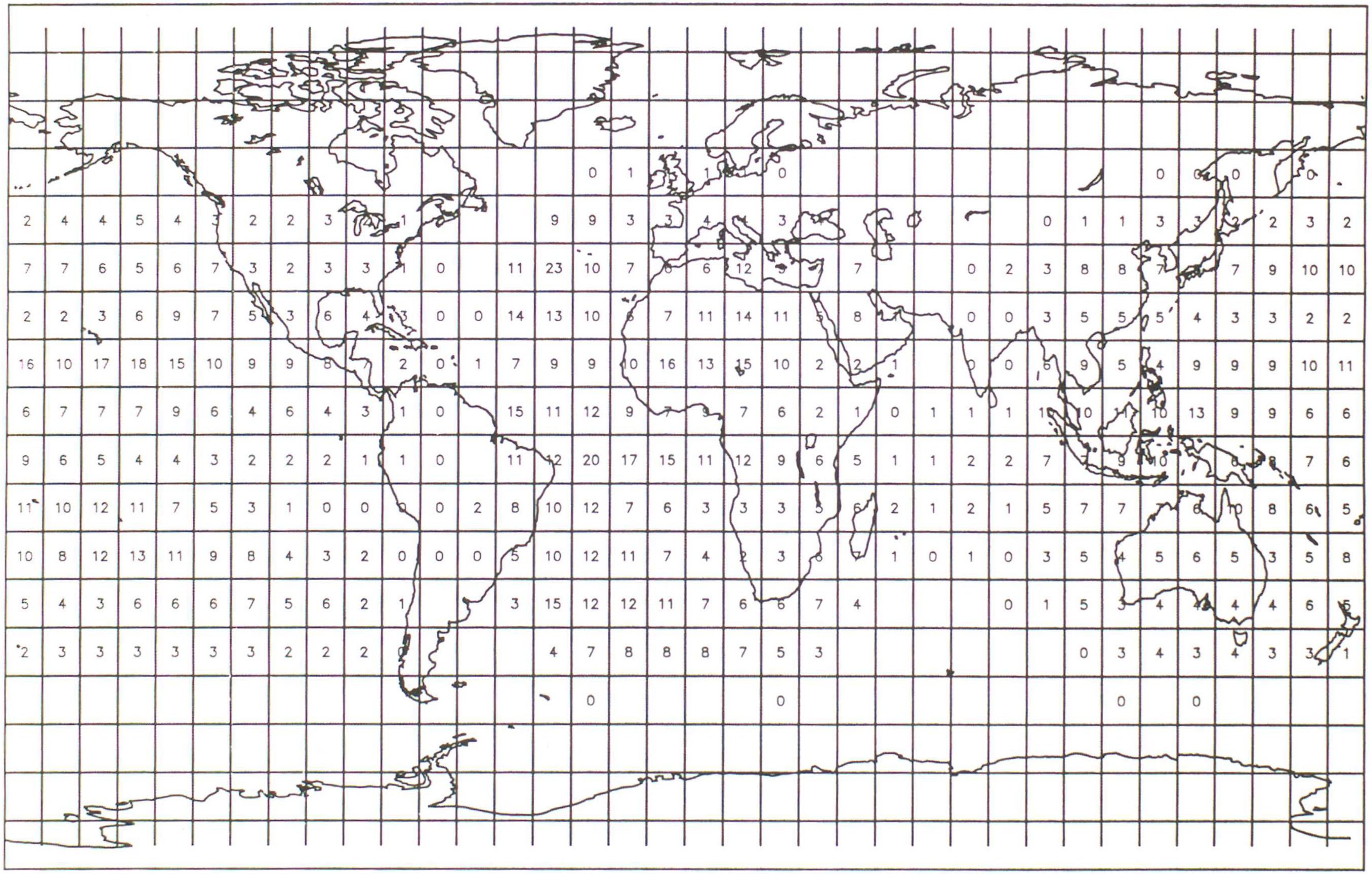
SATOBS : MEAN O−B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
APRIL 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


−.7 .8
−.7 −.9 −.7 −1.4 −2.6 −1.6 −1.7 −3.5 −3.1 −.7 .2 −.1 −.8 −.7 −.3
−1.0 −.5 −.2 .5 −2.5 −1.7 −.6 −.8 −1.6 1.6 1.5 −.4 .2 −1.9 −2.6 −.7 −.1 6.6 4.3 .2 −2.7 1.6
−1.0 −.6 −.2 −.6 −3.4 .7 1.7 .1 −1.4 −.2 2.4 −.6 6.0 3.9 2.2 2.7 3.1 3.9
.8 −1.2 −1.9 1.2 −.6 .4 2.2 6.3 7.5 3.4 5.2 4.0
.6 1.3 1.4 1.2 1.5 2.6 1.5 1.5 .3 1.0 −.1 −1.1 −1.4 −.6 −.6 −.4 .1 3.1 3.8 3.1 4.0 5.8 6.8
2.4 .6 .8 .9 1.3 1.8 3.4 1.7 −2.1 .1 .6 −.5 .1 2.6 5.2 5.1 3.5 4.9
−.2 −.6 −1.0 .6 1.3 1.7 5.7 7.8 9.5 6.3 4.5 4.5
−2.0 −.8 −1.7 −.2 1.1 .6 1.5 2.5 1.1 3.8 1.5 .6 .9 1.0 8.6 10.0 9.0 2.6 −.3 1.3 .8
.9 −.4 −.7 −1.1 −1.0 −1.4 1.1 −.6 −1.2 2.6 .4 .2 .1 .2 1.6 −.4 −1.9 −.3 .4 4.4 4.5
−1.5 −.8 −.3 .2 .8 .1 −1.3 −1.0 −1.6 −.6 −1.4 −1.2 −1.2 −.6 −1.4 −.4

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
APRIL 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


5
4 5 5 6 6 5 4 6 7 5 5 4 4 4 5 4
6 6 6 5 6 4 4 6 5 5 5 5 5 5 6 7 4 9 10 10 13 10
5 5 4 4 5 4 4 6 4 5 6 7 9 10 8 9 9 8
4 5 6 3 6 4 5 11 13 8 9 10
6 5 5 6 6 7 5 4 3 4 5 5 4 4 3 4 8 10 10 8 6 8 8 10
6 4 4 4 4 4 6 5 5 4 4 5 4 9 10 12 10 7 9 13 11
4 5 4 4 5 5 15 12 11 10 9 10 12
5 5 5 5 4 4 5 6 5 6 7 4 4 5 14 12 11 8 8 10 9
4 4 5 5 4 5 5 4 4 6 6 5 4 4 10 7 8 6 15 8 9
5 5 4 5 4 5 5 6 7 6 6 6 6 7 7 7

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
APRIL 1995


0 1 1 0 0 0 0 0
2 4 4 5 4 3 2 2 3 1 9 9 3 3 4 4 3 0 1 1 3 3 2 2 3 2
7 7 6 5 6 7 3 2 3 3 1 0 11 23 10 7 6 6 12 5 7 0 2 3 8 8 7 7 9 10 10
2 2 3 6 9 7 5 3 6 4 3 0 0 14 13 10 6 7 11 14 11 5 8 0 0 3 5 5 5 4 3 3 2 2
16 10 17 18 15 10 9 9 8 7 2 0 1 7 9 9 10 16 13 15 10 2 2 1 0 0 6 9 5 4 9 9 9 10 11
6 7 7 7 9 6 4 6 4 3 1 0 15 11 12 9 7 9 7 6 2 1 0 1 1 1 1 10 11 10 13 9 9 6 6
9 6 5 4 4 3 2 2 2 1 1 0 11 12 20 17 15 11 12 9 6 5 1 1 2 2 7 7 9 10 7 8 8 7 6
11 10 12 11 7 5 3 1 0 0 0 0 2 8 10 12 7 6 3 3 3 5 6 2 1 2 1 5 7 7 7 6 10 8 6 5
10 8 12 13 11 9 8 4 3 2 0 0 0 5 10 12 11 7 4 2 3 6 7 1 0 1 0 3 5 4 5 6 5 3 5 8
5 4 3 6 6 6 7 5 6 2 1 3 15 12 12 11 7 6 6 7 4 0 1 5 3 4 4 4 4 6 5
2 3 3 3 3 3 3 2 2 2 0 4 7 8 8 8 7 5 3 0 3 4 3 4 3 3 1
0 0 0 0

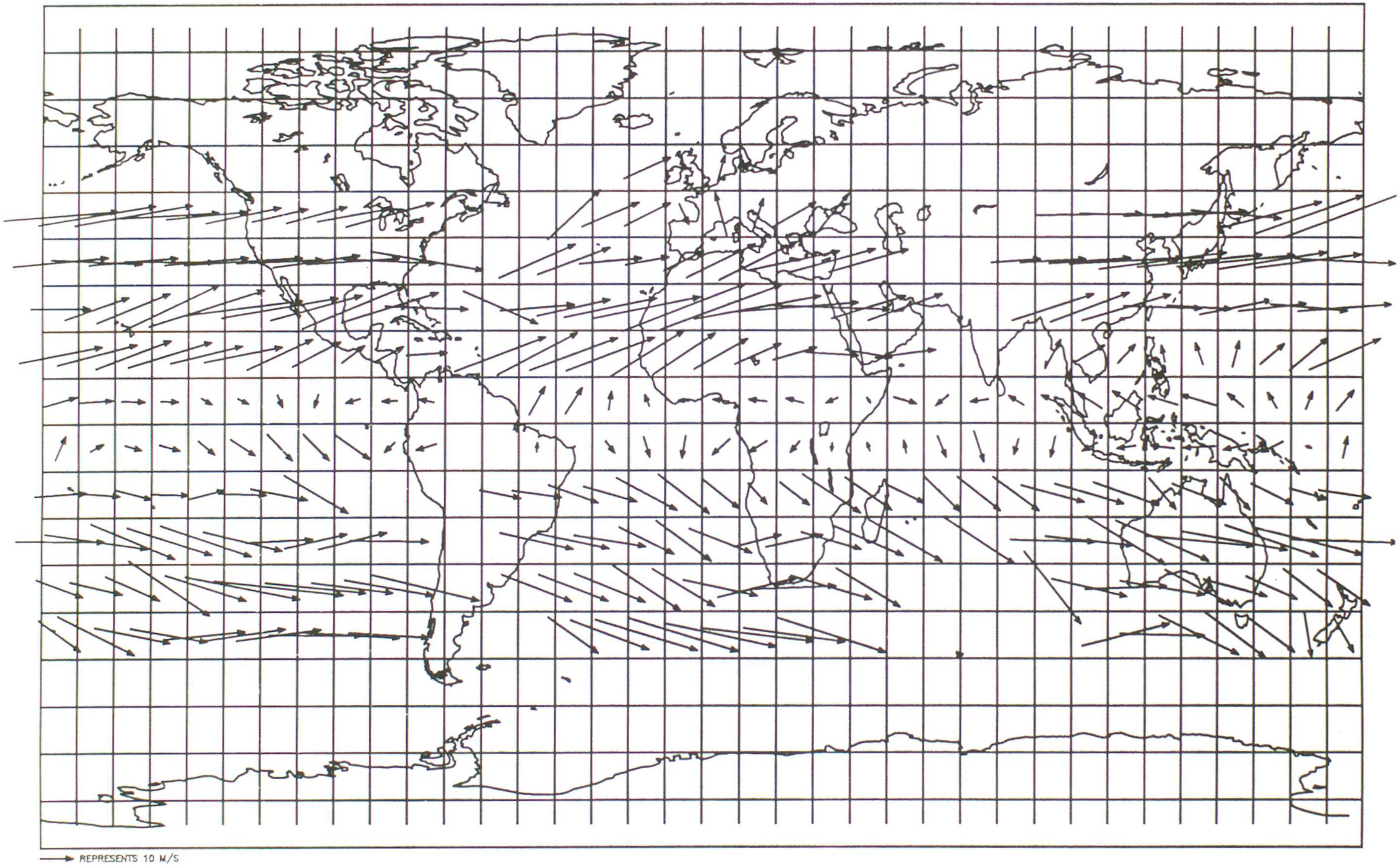
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA

APRIL 1995

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

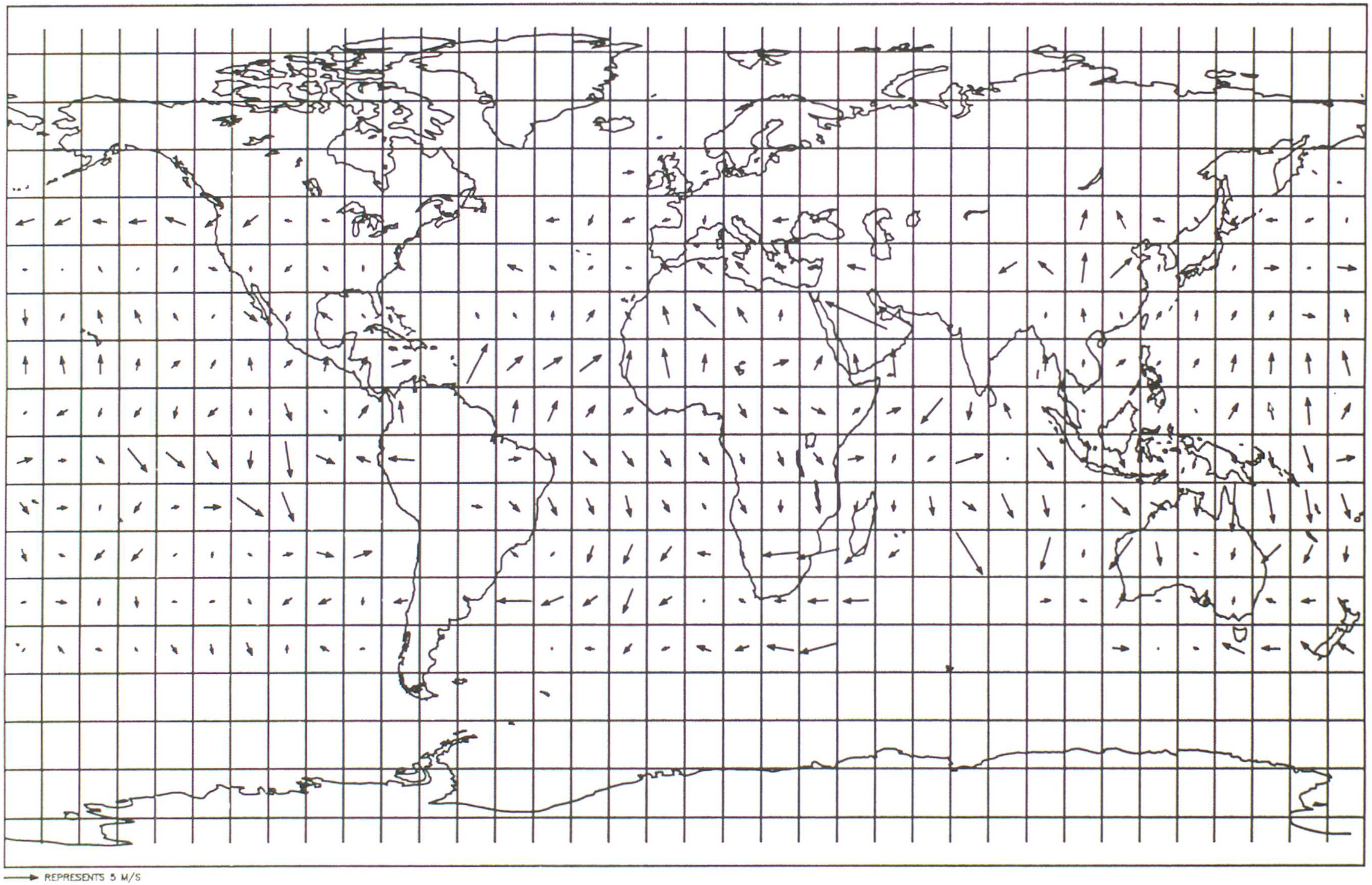
SATOB O−B VECTOR WIND DIFFERENCES BETWEEN 101−400 HPA

FIGURE 22

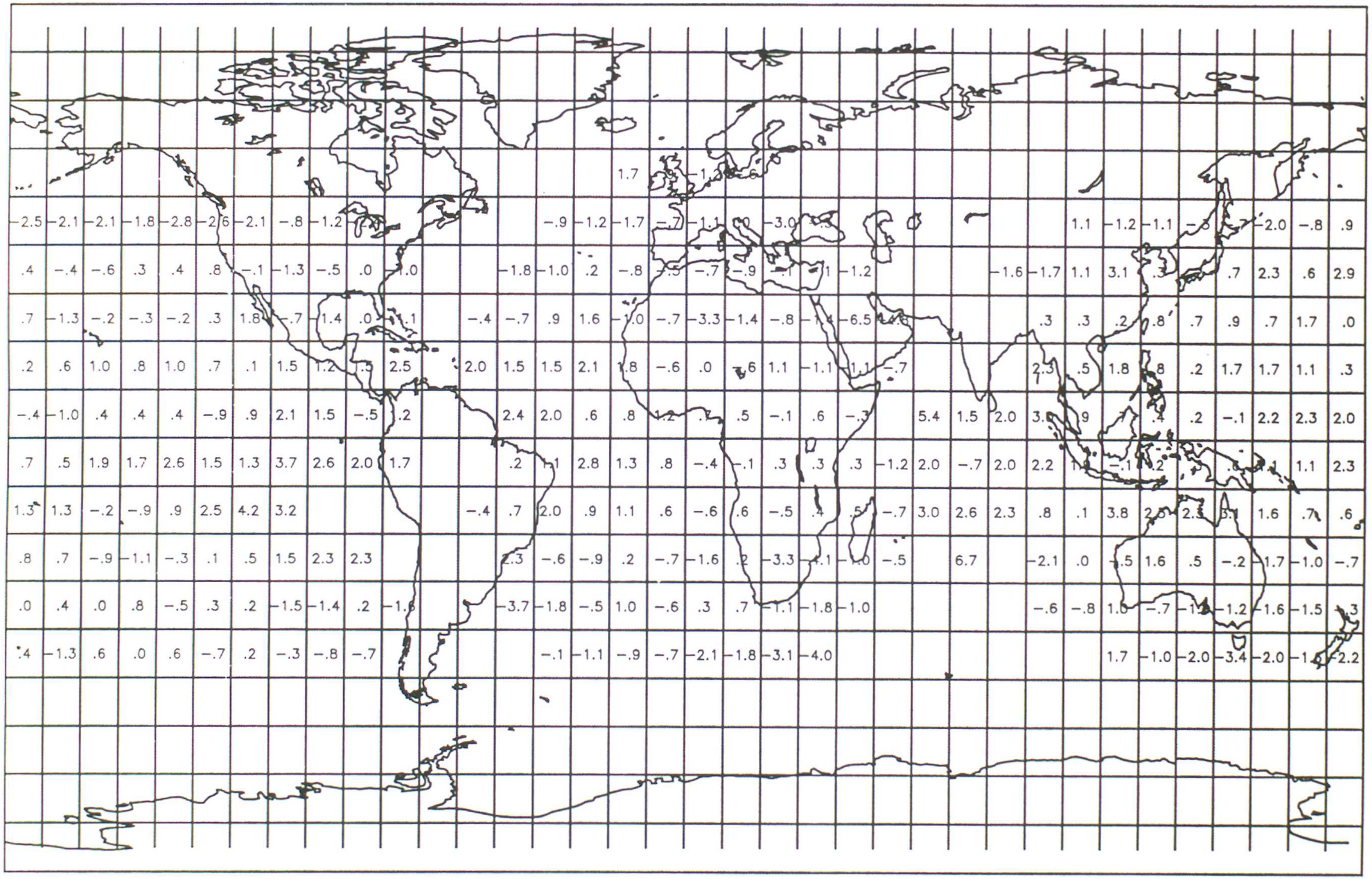
APRIL 1995

ALL OBSERVATIONS

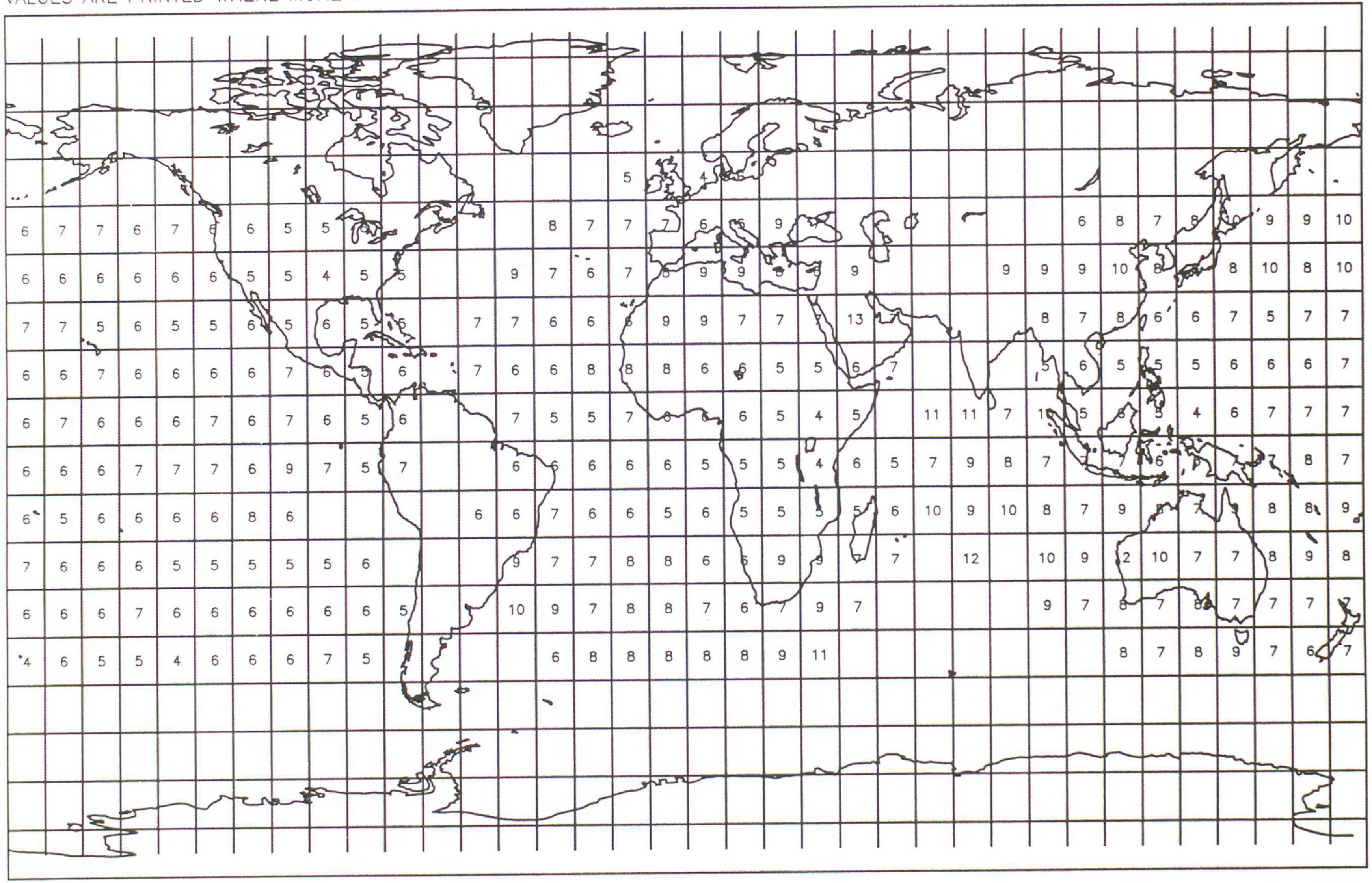
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
APRIL 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.7 −1.2 .6
−2.5 −2.1 −2.1 −1.8 −2.8 −2.6 −2.1 −.8 −1.2 −.9 −1.2 −1.7 −.7 −1.1 .0 −3.0 1.1 −1.2 −1.1 −.7 −2.0 −.8 .9
.4 −.4 −.6 .3 .4 .8 −.1 −1.3 −.5 .0 −1.0 −1.8 −1.0 .2 −.8 −.5 −.7 −.9 −.1 −.1 −1.2 −1.6 −1.7 1.1 3.1 .3 .7 2.3 .6 2.9
.7 −1.3 −.2 −.3 −.2 .3 1.8 −.7 −1.4 .0 −1.1 −.4 −.7 .9 1.6 −1.0 −.7 −3.3 −1.4 −.8 −1.4 −6.5 .3 .3 .2 .8 .7 .9 .7 1.7 .0
.2 .6 1.0 .8 1.0 .7 .1 1.5 1.2 1.5 2.5 2.0 1.5 1.5 2.1 1.8 −.6 .0 .6 1.1 −1.1 1.1 −.7 2.3 .5 1.8 .8 .2 1.7 1.7 1.1 .3
−.4 −1.0 .4 .4 .4 −.9 .9 2.1 1.5 −.5 .2 2.4 2.0 .6 .8 1.2 .7 .5 −.1 .6 −.3 5.4 1.5 2.0 3.0 .9 .7 .4 .2 −.1 2.2 2.3 2.0
.7 .5 1.9 1.7 2.6 1.5 1.3 3.7 2.6 2.0 1.7 .2 1.1 2.8 1.3 .8 −.4 −.1 .3 .3 .3 −1.2 2.0 −.7 2.0 2.2 −.1 .2 1.1 2.3
1.3 1.3 −.2 −.9 .9 2.5 4.2 3.2 −.4 .7 2.0 .9 1.1 .6 −.6 .6 −.5 .4 .5 −.7 3.0 2.6 2.3 .8 .1 3.8 2.5 2.3 3.1 1.6 .7 .6
.8 .7 −.9 −1.1 −.3 .1 .5 1.5 2.3 2.3 2.3 −.6 −.9 .2 −.7 −1.6 .2 −3.3 −1.1 −1.0 −.5 6.7 −2.1 .0 −.5 1.6 .5 −.2 −1.7 −1.0 −.7
.0 .4 .0 .8 −.5 .3 .2 −1.5 −1.4 .2 −1.6 −3.7 −1.8 −.5 1.0 −.6 .3 .7 −1.1 −1.8 −1.0 −.6 −.8 1.0 −.7 −1.3 −1.2 −1.6 −1.5 .3
.4 −1.3 .6 .0 .6 −.7 .2 −.3 −.8 −.7 −.1 −1.1 −.9 −.7 −2.1 −1.8 −3.1 −4.0 1.7 −1.0 −2.0 −3.4 −2.0 −1.6 −2.2

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
APRIL 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-11, NOAA-12 500 km.

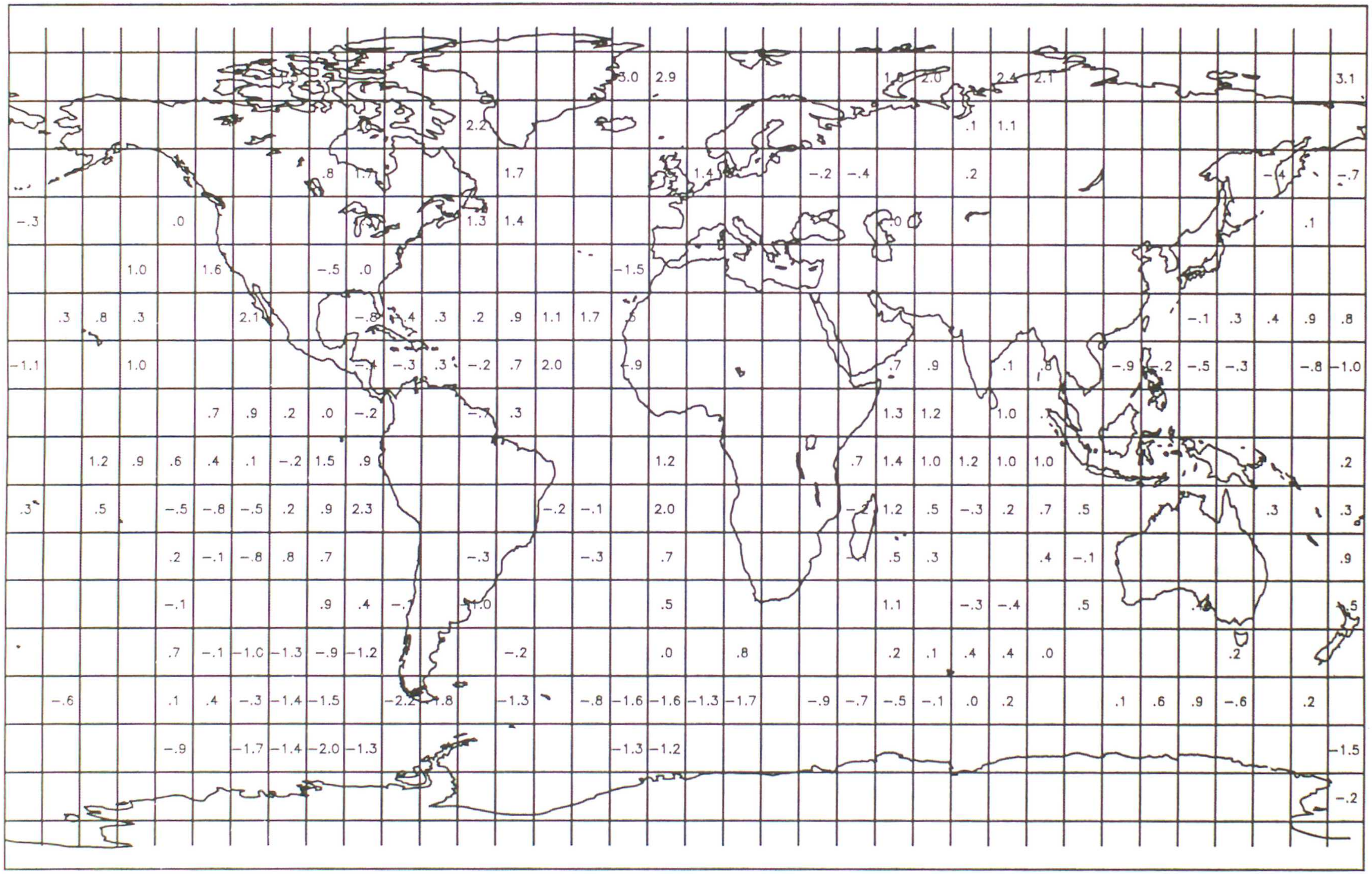
Standard of comparison :Background field from Bracknell global model.

Selection Criteria :All SATEM soundings where number of observations > 30.

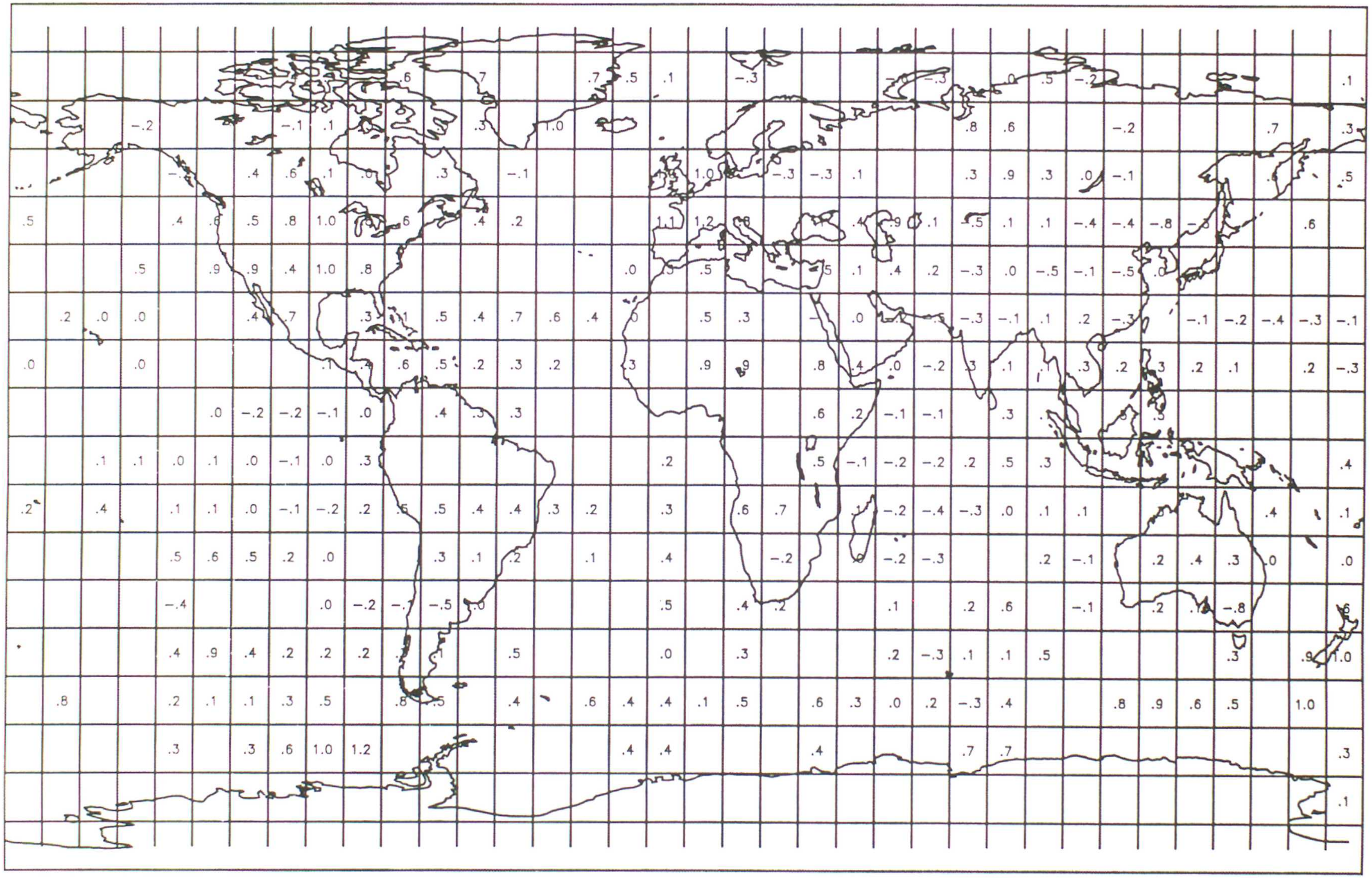
Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

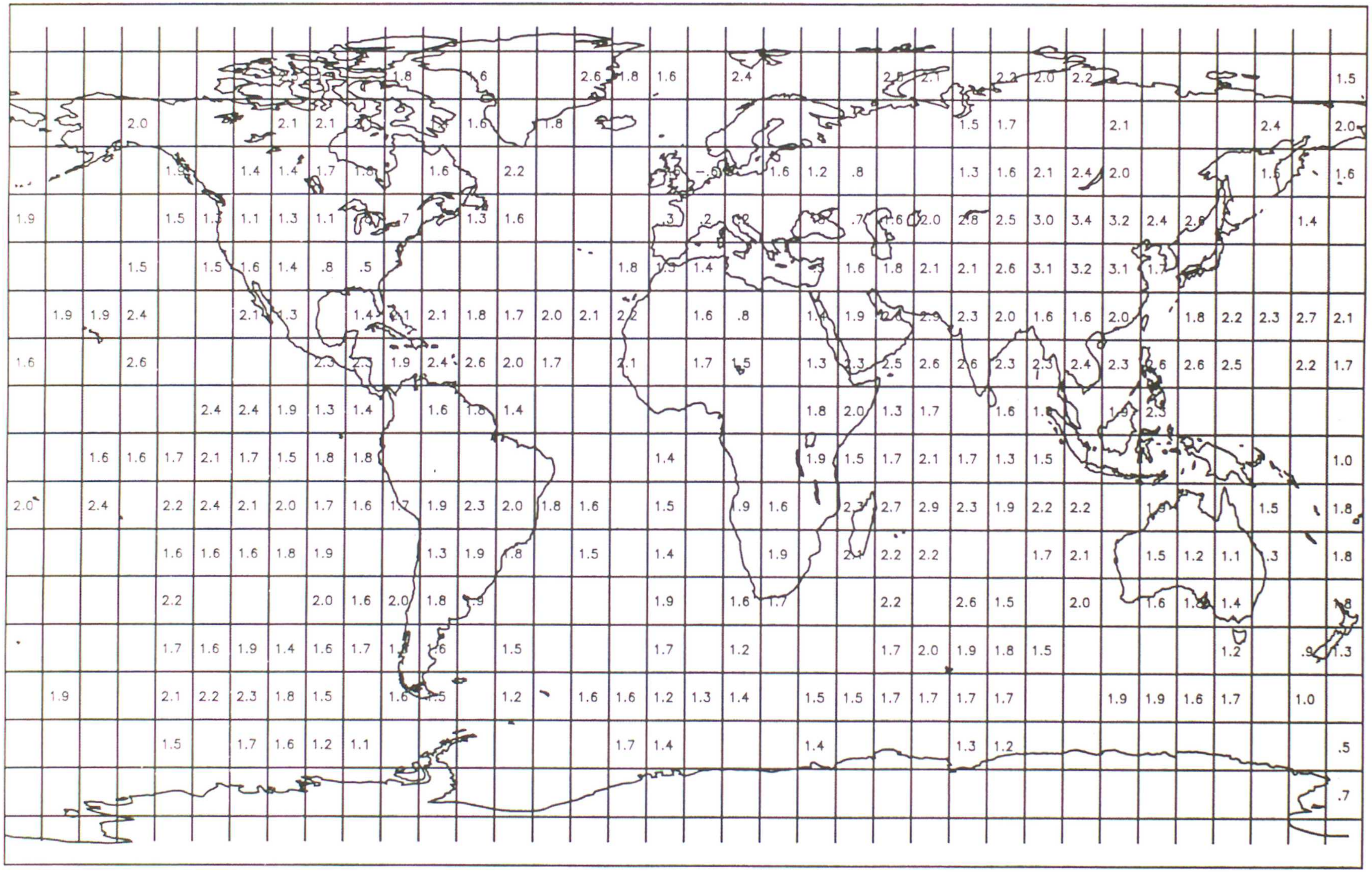
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
APRIL 1995 FIGURE 25
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


3.0 2.9 1.8 2.0 2.4 2.1 3.1
2.2 .1 1.1
.8 1.7 1.7 1.4 -.2 -.4 .2 -.4 -.7
-.3 .0 1.3 1.4 .0 .1
1.0 1.6 -.5 .0 -1.5
.3 .8 .3 2.1 -.8 .4 .3 .2 .9 1.1 1.7 .5 -.1 .3 .4 .9 .8
-1.1 1.0 -.4 -.3 .3 -.2 .7 2.0 -.9 .7 .9 .1 .8 -.9 .2 -.5 -.3 -.8 -1.0
.7 .9 .2 .0 -.2 -.1 .3 1.3 1.2 1.0 .1
1.2 .9 .6 .4 .1 -.2 1.5 .9 1.2 .7 1.4 1.0 1.2 1.0 1.0 .2
.3 .5 -.5 -.8 -.5 .2 .9 2.3 -.2 -.1 2.0 -.2 1.2 .5 -.3 .2 .7 .5 .3 .3
.2 -.1 -.8 .8 .7 -.3 -.3 .7 -.1 .5 .3 .4 -.1 .9
-.1 .9 .4 -.1 1.0 .5 1.1 -.3 -.4 .5 .4 .5
.7 -.1 -1.0 -1.3 -.9 -1.2 -.2 .0 .8 .2 .1 .4 .4 .0 .2
-.6 .1 .4 -.3 -1.4 -1.5 -2.2 1.8 -1.3 -.8 -1.6 -1.6 -1.3 -1.7 -.9 -.7 -.5 -.1 .0 .2 .1 .6 .9 -.6 .2
-.9 -1.7 -1.4 -2.0 -1.3 -1.3 -1.2 -1.5
-.2

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
APRIL 1995 FIGURE 26
NOAA–11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

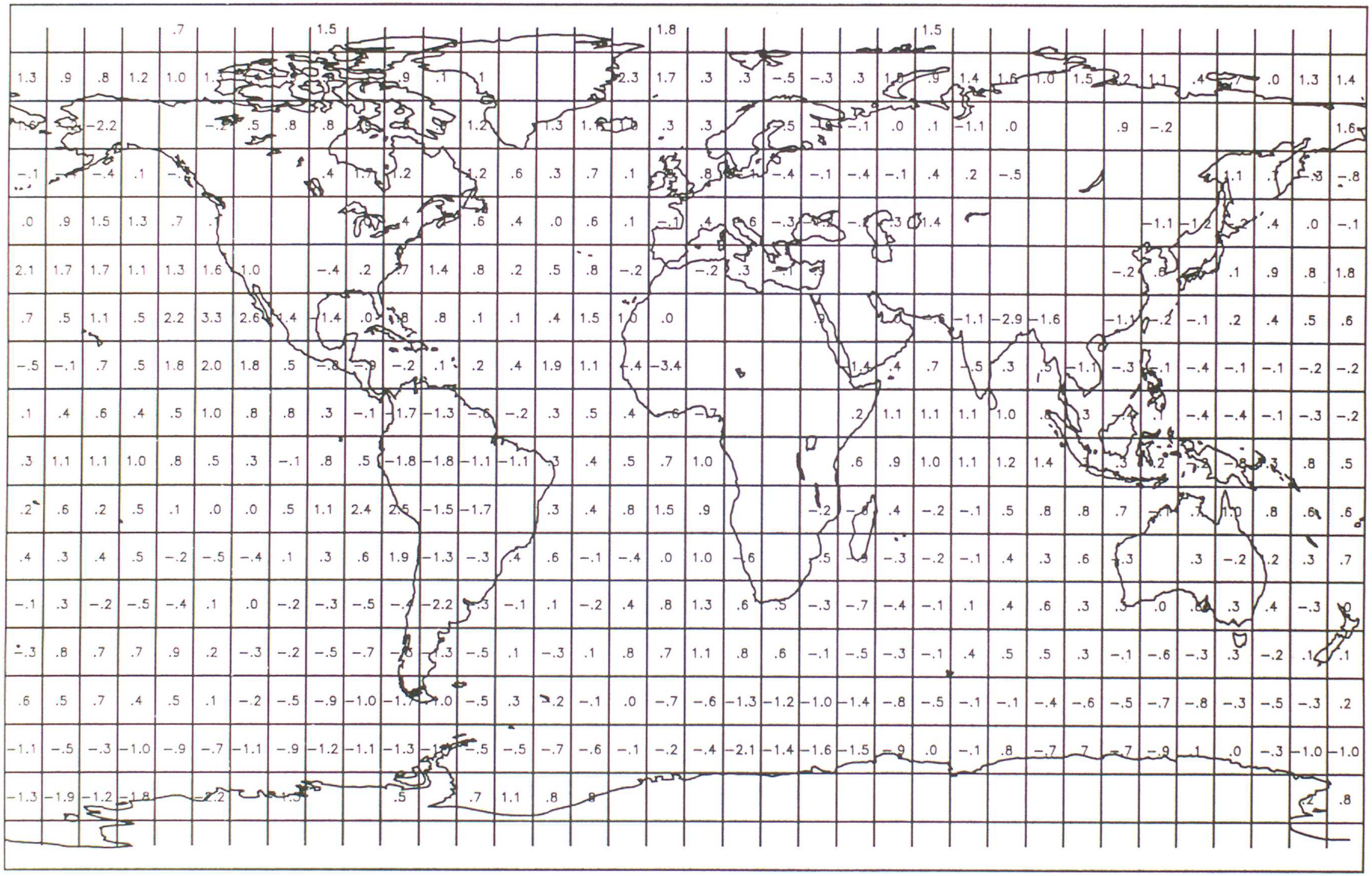

.6 .7 .7 .5 .1 –.3 –.3 .0 .5 –.2 .1
–.2 –.1 .1 .3 1.0 .8 .6 –.2 .7 .3
.4 .6 .1 .0 .3 –.1 1.0 1.0 –.3 –.3 .1 .3 .9 .3 .0 –.1 .5
.5 .4 .6 .5 .8 1.0 .6 .4 .2 1.1 1.2 .8 .4 .9 .1 –.5 .1 .1 –.4 –.4 –.8 .6
.5 .9 .9 .4 1.0 .8 .0 .5 .5 .1 .4 .2 –.3 .0 –.5 –.1 –.5 .0
.2 .0 .0 .4 .7 .3 .1 .5 .4 .7 .6 .4 .5 .3 .0 –.3 –.1 .1 .2 –.3 –.1 –.2 –.4 –.3 –.1
.0 .0 .1 .6 .5 .2 .3 .2 .3 .9 .9 .8 .4 .0 –.2 .3 .1 .3 .2 .3 .2 .1 .2 –.3
.0 –.2 –.2 –.1 .0 .4 .3 .3 .6 .2 –.1 –.1 .3 .3
.1 .1 .0 .1 .0 –.1 .0 .3 .2 .5 –.1 –.2 –.2 .2 .5 .3 .4
.2 .4 .1 .1 .0 –.1 –.2 .2 .5 .5 .4 .4 .3 .2 .3 .6 .7 .1 –.2 –.4 –.3 .0 .1 .1 .4 .1
.5 .6 .5 .2 .0 .3 .1 .2 .1 .4 –.2 .0 –.2 –.3 .2 –.1 .2 .4 .3 .0 .0
–.4 .0 –.2 –.1 –.5 .0 .5 .4 .2 .1 .2 .6 –.1 .2 .1 –.8 .6
.4 .9 .4 .2 .2 .2 .1 .5 .0 .3 .2 –.3 .1 .1 .5 .3 .9 1.0
.8 .2 .1 .1 .3 .5 .8 .5 .4 .6 .4 .4 .1 .5 .6 .3 .0 .2 –.3 .4 .8 .9 .6 .5 1.0
.3 .3 .6 1.0 1.2 .4 .4 .4 .7 .7 .3
.1

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
APRIL 1995 FIGURE 27
NOAA–11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


1.8 1.6 2.6 1.8 1.6 2.4 2.1 2.2 2.0 2.2 1.5
2.0 2.1 2.1 1.6 1.8 1.5 1.7 2.1 2.4 2.0
1.4 1.4 1.7 1.6 2.2 -.6 1.6 1.2 .8 1.3 1.6 2.1 2.4 2.0 1.6
1.9 1.5 1.1 1.3 1.1 .7 1.3 1.6 .3 .2 .7 1.6 2.0 2.8 2.5 3.0 3.4 3.2 2.4 1.4
1.5 1.5 1.6 1.4 .8 .5 1.8 1.4 1.6 1.8 2.1 2.1 2.6 3.1 3.2 3.1 1.7
1.9 1.9 2.4 2.1 1.3 1.4 2.1 2.1 1.8 1.7 2.0 2.1 2.2 1.6 .8 1.9 2.3 2.0 1.6 1.6 2.0 1.8 2.2 2.3 2.7 2.1
1.6 2.6 1.9 2.4 2.6 2.0 1.7 2.1 1.7 1.5 1.3 2.5 2.6 2.6 2.3 2.4 2.3 2.6 2.5 2.2 1.7
2.4 2.4 1.9 1.3 1.4 1.6 1.4 1.8 2.0 1.3 1.7 1.6 2.3
1.6 1.6 1.7 2.1 1.7 1.5 1.8 1.8 1.4 1.9 1.5 1.7 2.1 1.7 1.3 1.5 1.0
2.0 2.4 2.2 2.4 2.1 2.0 1.7 1.6 1.9 2.3 2.0 1.8 1.6 1.5 1.6 2.7 2.9 2.3 1.9 2.2 2.2 1.5 1.8
1.6 1.6 1.6 1.8 1.9 1.3 1.9 1.5 1.4 1.9 2.2 2.2 1.7 2.1 1.5 1.2 1.1 .3 1.8
2.2 2.0 1.6 2.0 1.8 1.9 1.6 2.2 2.6 1.5 2.0 1.6 1.4
1.7 1.6 1.9 1.4 1.6 1.7 1.5 1.7 1.2 1.7 2.0 1.9 1.8 1.5 1.2 .9 1.3
1.9 2.1 2.2 2.3 1.8 1.5 1.6 1.2 1.6 1.6 1.2 1.3 1.4 1.5 1.5 1.7 1.7 1.7 1.7 1.9 1.9 1.6 1.7 1.0
1.5 1.7 1.6 1.2 1.1 1.7 1.4 1.4 1.3 1.2 .5
.7

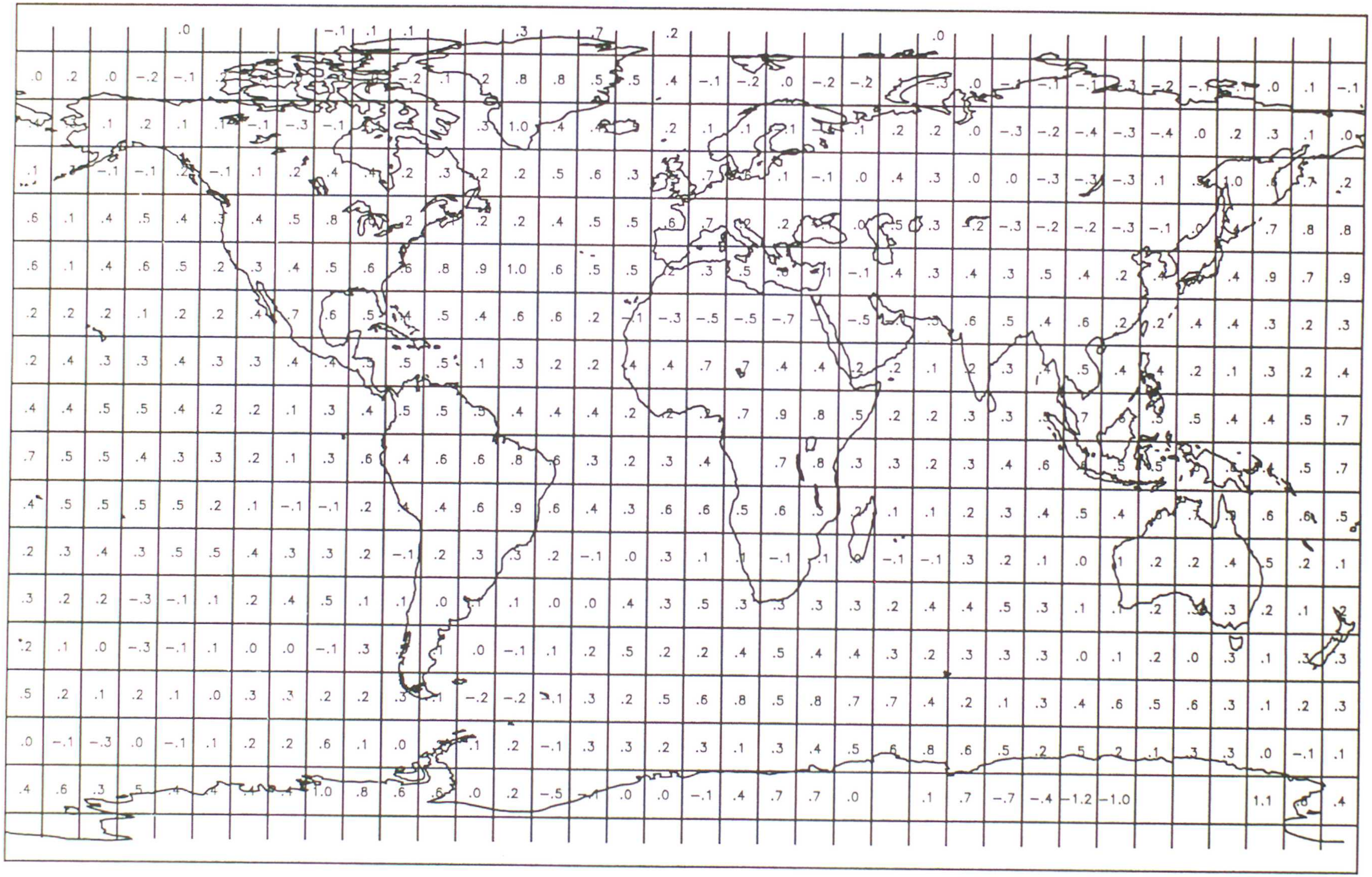
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
APRIL 1995
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
APRIL 1995
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA

APRIL 1995

NOAA-12, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

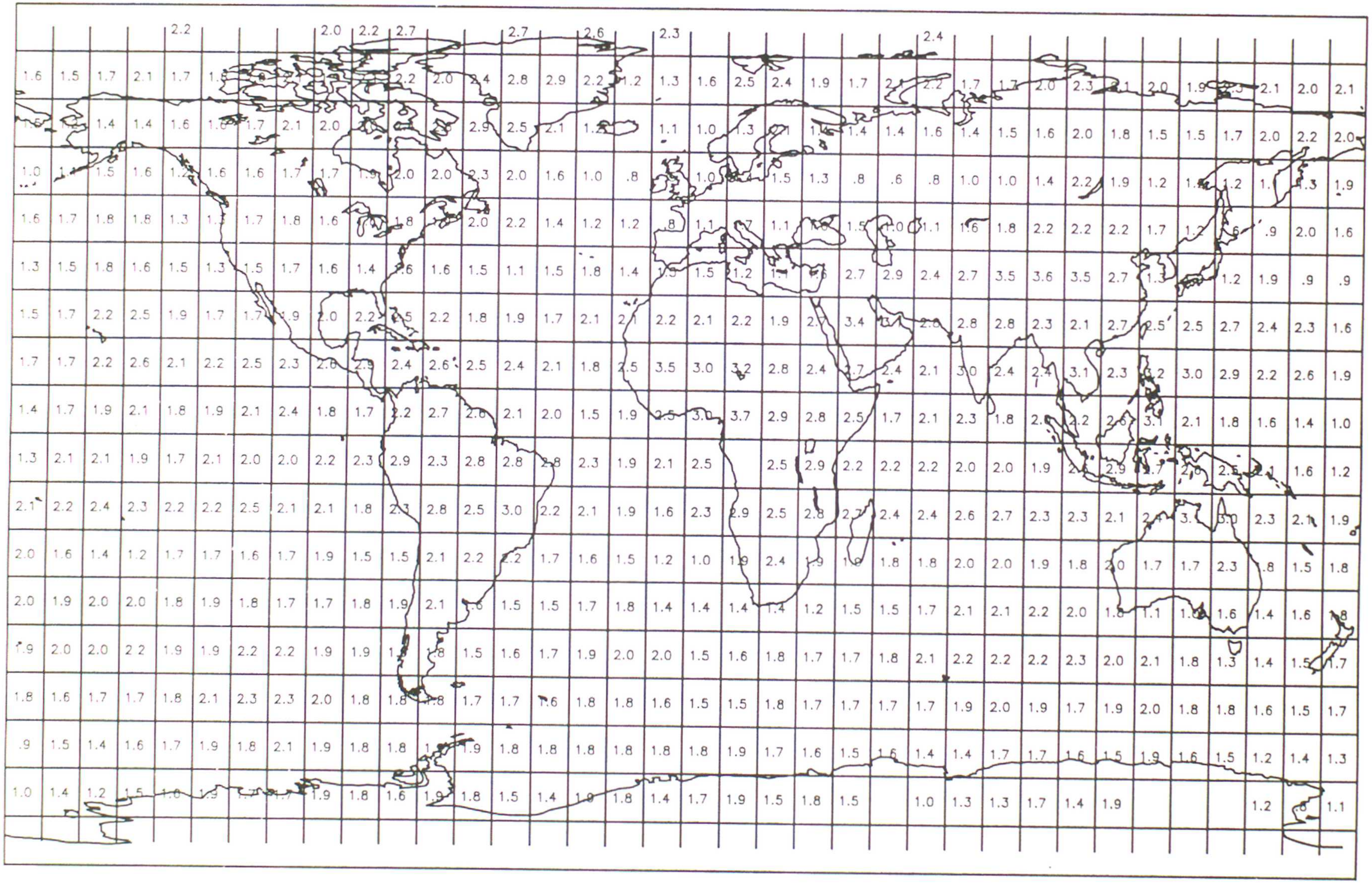


TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)

DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25538	73.8	-14.7	ALL	MSLP	SUR	295	0	0	1.3	-1.5	2.0
25539	76.1	-9.0	ALL	MSLP	SUR	342	0	0	1.6	-2.3	2.7
25552	77.6	-11.4	ALL	MSLP	SUR	178	0	0	1.4	-0.9	1.6
25565	61.7	-37.6	ALL	MSLP	SUR	659	0	0	1.6	-0.1	1.6
44613	53.1	-46.3	ALL	MSLP	SUR	566	0	0	1.6	0.1	1.6
44614	56.7	-6.3	ALL	MSLP	SUR	1550	1	0	1.2	0.3	1.2
44616	54.4	-36.6	ALL	MSLP	SUR	1507	2	0	2.0	0.9	2.2
44624	50.3	-16.2	ALL	MSLP	SUR	1353	4	0	1.1	0.2	1.1
44726	52.6	-27.0	ALL	MSLP	SUR	1509	9	1	1.8	1.0	2.0
44728	55.5	-35.9	ALL	MSLP	SUR	1492	2	0	1.8	0.2	1.9
44742	58.2	-36.9	ALL	MSLP	SUR	1414	0	0	1.6	0.2	1.6
44762	52.3	-10.2	ALL	MSLP	SUR	8	2	25	6.1	3.7	7.1
44764	59.6	-12.9	ALL	MSLP	SUR	1832	2	0	1.3	0.5	1.4
44766	53.1	-10.9	ALL	MSLP	SUR	892	2	0	1.0	0.2	1.0
44774	53.9	-10.0	ALL	MSLP	SUR	6	3	50	5.1	2.2	5.5
44775	57.0	-5.8	ALL	MSLP	SUR	4	0	0	6.0	7.4	9.5
44776	59.8	-6.8	ALL	MSLP	SUR	1791	0	0	1.2	0.5	1.3
44780	55.5	-11.2	ALL	MSLP	SUR	1650	0	0	1.1	0.1	1.1
62515	44.4	-18.0	ALL	MSLP	SUR	277	0	0	0.9	0.3	1.0
62517	46.5	-19.5	ALL	MSLP	SUR	724	0	0	0.9	0.5	1.0
62518	45.4	-18.2	ALL	MSLP	SUR	680	0	0	1.8	-1.0	2.0
62519	48.4	-19.6	ALL	MSLP	SUR	745	0	0	1.0	0.1	1.0
62524	25.9	-42.9	ALL	MSLP	SUR	710	1	0	1.4	0.0	1.4
62805	58.0	-28.1	ALL	MSLP	SUR	1503	755	50	3.7	0.2	3.7
64528	58.6	-8.2	ALL	MSLP	SUR	1297	0	0	1.2	0.0	1.2
64529	61.2	-22.1	ALL	MSLP	SUR	1016	5	0	1.7	0.1	1.7
64544	57.2	-36.5	ALL	MSLP	SUR	379	0	0	1.6	0.4	1.7
64546	61.3	-17.1	ALL	MSLP	SUR	264	0	0	1.5	-1.4	2.1
64588	57.7	-29.8	ALL	MSLP	SUR	222	0	0	1.0	0.4	1.1
64589	60.6	-32.9	ALL	MSLP	SUR	163	0	0	1.1	1.9	2.2
65562	61.3	-24.5	ALL	MSLP	SUR	1648	0	0	1.7	0.1	1.7
65571	58.3	-6.7	ALL	MSLP	SUR	1257	3	0	1.7	-0.1	1.7
65581	59.1	-39.1	ALL	MSLP	SUR	700	0	0	0.9	0.0	0.9
65592	61.0	-9.6	ALL	MSLP	SUR	202	2	1	1.8	6.9	7.1
WIND SPEED											
44613	53.1	-46.3	ALL	SPEED	SUR	535	0	0	2.2	-1.9	2.9
44742	58.2	-36.9	ALL	SPEED	SUR	967	2	0	3.2	-2.5	4.1
44762	52.3	-10.2	ALL	SPEED	SUR	8	0	0	5.4	0.2	5.4
44764	59.6	-12.9	ALL	SPEED	SUR	1330	4	0	2.7	-2.7	3.8
44776	59.8	-6.8	ALL	SPEED	SUR	1316	4	0	2.0	-0.9	2.2
62518	45.4	-18.2	ALL	SPEED	SUR	676	0	0	1.5	0.1	1.5
62519	48.4	-19.6	ALL	SPEED	SUR	734	0	0	1.6	-0.3	1.6
64588	57.7	-29.8	ALL	SPEED	SUR	13	0	0	1.8	3.1	3.6
64589	60.6	-32.9	ALL	SPEED	SUR	8	0	0	0.7	-2.3	2.4
WIND DIRECTION											
44613	53.1	-46.3	ALL	DIRN.	SUR	489	0	0	16.9	26.4	31.3
44742	58.2	-36.9	ALL	DIRN.	SUR	858	2	0	19.0	26.9	32.9
44762	52.3	-10.2	ALL	DIRN.	SUR	7	0	0	85.0	-1.4	85.0
44764	59.6	-12.9	ALL	DIRN.	SUR	1240	4	0	20.7	-7.9	22.2
44776	59.8	-6.8	ALL	DIRN.	SUR	1233	4	0	63.9	2.1	63.9
62518	45.4	-18.2	ALL	DIRN.	SUR	558	0	0	14.7	-0.2	14.7
62519	48.4	-19.6	ALL	DIRN.	SUR	650	0	0	16.8	-6.8	18.1
64588	57.7	-29.8	ALL	DIRN.	SUR	13	0	0	81.7	104.8	132.9
64589	60.6	-32.9	ALL	DIRN.	SUR	8	0	0	7.5	124.5	124.8

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures: **Period**		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2297	0	1	1.9	-0.2	2307	0	2	0	7.8	1.1
AAN	22	0	5	2.2	-0.3	22	0	0	0	5.5	0.0
ACA	670	0	2	2.1	-0.3	681	0	2	1	6.5	0.3
ACF	26	0	0	1.6	0.8	26	0	0	0	6.8	0.8
AEA	70	11	100	6.4	4.6	67	0	10	0	11.9	0.0
AEL	370	1	3	2.0	-0.2	371	0	3	0	9.2	1.4
AFL	164	1	100	2.9	1.3	166	0	100	0	9.0	1.5
AFR	775	0	4	1.9	-0.3	783	0	4	0	7.5	1.1
AIC	32	0	6	2.4	-0.2	36	0	11	0	13.3	-1.7
AMX	164	1	5	1.5	-0.3	163	0	7	0	9.7	0.9
ANZ	184	1	1	2.3	-1.3	184	0	2	1	6.2	1.1
AOM	227	0	1	1.4	0.5	228	0	3	1	7.4	1.1
AUA	37	0	5	1.5	-0.8	38	0	8	0	8.5	0.3
AVA	96	1	2	1.9	-0.2	95	0	3	0	8.2	1.6
AZA	380	0	2	1.8	0.5	391	0	3	0	7.8	1.4
BAL	110	2	17	2.1	-0.4	118	0	17	0	7.5	1.0
BAW	1509	1	2	1.9	-0.1	1522	0	3	0	7.1	0.7
BBB	27	0	26	1.2	-0.1	28	0	29	0	9.4	-0.1
BWA	115	0	3	1.8	0.7	116	0	3	1	7.9	1.6
CDN	524	0	0	1.8	0.2	525	0	2	1	7.0	0.7
CFG	498	1	3	2.1	-1.1	503	0	2	0	8.8	0.7
CKT	34	0	3	1.6	0.5	35	0	6	0	12.2	2.3
CLI	35	0	6	2.4	0.0	38	3	5	0	7.6	-0.2
CLX	65	0	2	1.8	-0.8	65	0	2	0	7.3	-0.5
CMM	30	0	100	2.7	1.1	28	0	11	0	5.6	-0.4
COA	315	0	0	1.6	0.5	314	0	1	1	8.1	0.4
CRL	147	1	2	2.0	0.4	145	0	3	1	8.3	1.7
CSA	29	0	0	1.5	-0.7	29	0	0	0	7.8	0.7
CTM	29	0	17	1.8	-0.4	29	0	21	3	6.2	0.8
CUB	73	1	5	2.2	1.2	73	0	100	0	11.1	1.8
DAL	2715	0	1	1.8	0.1	2721	0	2	0	8.0	1.0
DHL	396	2	100	3.5	-1.7	400	0	4	1	9.3	0.6
DLH	2337	0	11	2.0	0.1	2352	0	13	2	7.3	0.8
DOA	54	6	11	1.8	-0.6	54	0	13	0	8.6	2.8
ELY	78	1	5	1.7	0.2	80	1	9	0	8.3	1.3
FDX	316	1	3	2.2	0.7	318	0	4	1	9.8	1.0
FIN	350	1	2	1.9	0.4	348	0	2	1	7.5	0.5
GAF	99	0	2	2.2	0.5	97	0	3	2	8.1	0.9
GFA	27	0	7	2.4	0.1	27	0	7	0	7.6	0.6
HLF	60	2	0	1.4	-1.0	61	0	0	0	8.0	1.5
IBE	1061	0	20	2.0	0.4	1059	0	21	0	8.6	0.9
ICE	443	1	1	1.5	-0.2	441	0	2	0	7.6	0.8
IQQ	21	0	0	2.2	-0.2	23	0	4	0	7.3	2.8
KLM	1787	1	2	1.9	0.1	1805	0	3	0	7.9	1.1
LDA	97	0	11	1.8	-0.9	98	0	12	0	7.3	1.0
LDI	132	0	3	2.5	-1.8	135	0	3	1	8.8	0.7
LIB	142	0	1	1.6	0.3	143	0	3	1	7.6	1.7
LOT	229	0	2	1.7	-0.4	229	0	1	0	6.9	0.7
LTU	491	1	2	1.8	0.4	485	0	2	1	7.5	0.7
MKD	38	0	0	1.7	-1.0	38	0	0	0	6.7	1.3
MPH	462	1	2	2.1	-0.9	469	0	2	0	8.6	0.6
NWA	1990	1	1	2.0	0.8	2042	0	2	1	7.7	0.6
OAL	45	0	2	3.0	2.0	46	0	4	0	10.0	1.3
RJA	96	2	5	2.0	0.6	97	0	2	0	8.0	0.8
ROT	23	4	4	1.7	0.7	25	0	4	0	6.9	-0.9
RRR	147	1	14	2.1	0.2	150	0	13	1	6.3	0.2
SAB	49	0	0	1.7	-0.6	50	0	0	0	5.3	2.6
SAS	1370	0	1	1.8	-0.4	1366	0	1	1	7.3	0.9
SIA	70	0	3	2.6	-1.3	72	0	6	0	9.0	0.2

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SPP	117	0	9	1.8	-0.4	115	1	10	0	7.5	0.8
SVA	79	0	5	1.4	0.1	90	0	7	0	8.4	-0.5
SWR	144	1	3	1.8	0.2	145	0	1	1	8.3	1.1
TAP	289	1	4	2.0	0.0	287	0	3	0	8.6	1.6
TEJ	38	5	13	2.4	0.7	38	0	13	0	6.7	0.3
THY	31	6	13	2.7	0.3	35	0	20	0	12.8	3.0
TIH	79	0	3	1.4	-0.4	79	0	4	0	7.0	0.7
TOW	70	1	3	1.8	-0.3	71	0	4	0	10.0	0.3
TSC	30	0	7	2.0	1.0	30	0	3	0	6.3	-0.1
TWA	845	0	2	1.9	-0.2	841	0	2	0	7.6	1.4
UAL	1296	0	2	2.1	-0.6	1320	0	1	0	7.6	0.8
ULE	65	0	0	1.1	-0.3	65	0	0	0	6.7	0.1
UPS	414	3	15	1.8	-0.1	422	0	14	0	9.3	1.6
USA	160	1	4	1.8	-0.7	160	0	6	0	8.3	1.5
VIA	94	2	2	1.8	0.6	98	0	1	0	7.8	0.6
VIR	152	0	3	1.9	-0.5	154	0	1	0	7.9	1.2
BA	6491	0	27	1.6	0.5	6488	0	26	0	7.6	1.1
KL	4140	1	55	2.5	2.0	4140	0	20	0	8.6	1.6
LH	772	0	8	1.8	-0.5	757	0	34	1	6.3	0.4
M	95	1	100	3.1	0.8	93	2	100	0	13.6	1.9
N	257	1	4	2.6	0.5	257	0	5	0	9.7	0.9

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	1	0	0.0	4.0	4.0
DBLK	00	Z	100	1	0	0.0	2.0	-2.0
EHOA	00	Z	100	1	0	0.0	7.0	7.0
EHOA	12	Z	100	20	0	16.1	16.6	4.0
FNOR	00	Z	100	6	0	16.8	30.1	25.0
FNOR	12	Z	100	7	0	19.1	20.5	7.4
FNOU	00	Z	100	10	0	12.9	18.3	13.0
FNOU	12	Z	100	9	0	19.9	19.9	-1.0
FNPH	00	Z	100	14	0	27.3	28.5	8.4
FNPH	12	Z	100	14	0	19.3	21.3	9.0
FNRS	00	Z	100	12	0	19.7	20.6	6.1
FNRS	12	Z	100	13	0	18.2	18.6	3.8
GACA	00	Z	100	27	0	11.0	18.2	14.6
GACA	12	Z	100	27	0	12.8	13.4	3.7
JBOA	00	Z	100	1	0	0.0	40.0	-40.0
JIVB	00	Z	100	1	0	0.0	42.0	42.0
LDWR	00	Z	100	29	0	12.9	13.2	2.7
LDWR	12	Z	100	29	0	12.4	12.5	1.8
OXYL	00	Z	100	7	0	18.0	27.1	20.3
OXYL	12	Z	100	6	0	12.6	38.3	36.2
SHIP	00	Z	100	2	0	20.0	20.0	0.0
SHIPAE	00	Z	100	1	0	0.0	8.0	8.0
SHIPAF	00	Z	100	8	0	12.1	51.8	50.4
SHIPAF	12	Z	100	4	0	14.9	41.7	39.0
UQYC	00	Z	100	1	0	0.0	0.0	0.0
V2GH	00	Z	100	8	0	13.3	15.0	7.0
V2GH	12	Z	100	9	0	20.5	25.4	15.0
V2LV	00	Z	100	23	0	22.2	24.6	10.7
V2LV	12	Z	100	24	0	29.9	34.5	17.3
V2LX	00	Z	100	22	0	18.8	26.1	18.1
V2LX	12	Z	100	25	0	19.1	28.6	21.4
WTEA	00	Z	100	1	0	0.0	10.0	10.0
ZDLG	00	Z	100	1	0	0.0	143.0	143.0
03953	00	Z	100	29	0	13.6	19.4	13.8
03953	12	Z	100	28	0	15.3	18.7	10.8
04018	00	Z	100	29	0	16.0	27.6	22.5
04018	12	Z	100	29	0	16.9	37.7	33.7
04220	00	Z	100	29	0	18.8	34.4	28.7
04220	12	Z	100	30	0	20.6	41.6	36.2
04270	00	Z	100	27	0	17.9	29.1	23.0
04270	12	Z	100	28	0	20.4	28.4	19.8
04339	00	Z	100	28	0	14.8	24.0	18.9
04339	12	Z	100	29	0	16.4	29.4	24.4
04360	00	Z	100	25	0	11.9	28.5	25.9
04360	12	Z	100	29	0	17.3	37.2	33.0
08001	00	Z	100	22	0	18.2	24.3	16.0
08001	12	Z	100	27	0	21.7	23.0	7.6
08508	00	Z	100	28	0	24.3	31.5	20.0
08508	12	Z	100	29	0	20.2	24.3	13.6
08594	00	Z	100	26	0	13.6	23.3	-18.9
08594	12	Z	100	27	0	21.9	29.6	-19.8
60020	00	Z	100	29	0	19.4	20.0	5.2
60020	12	Z	100	30	0	21.5	22.2	-5.8
71600	00	Z	100	25	0	18.9	37.5	32.4
71600	12	Z	100	29	0	19.6	34.9	28.9
72201	00	Z	100	27	0	30.7	40.5	26.4
72201	12	Z	100	28	0	23.6	44.3	37.6
72402	00	Z	100	29	0	28.9	56.0	47.9
72402	12	Z	100	28	0	24.7	59.3	53.9
74494	00	Z	100	26	0	23.7	23.8	-2.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
74494	12	Z	100	29	0	21.5	41.5	35.6
78016	00	Z	100	1	0	0.0	33.0	33.0

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :% REJ :Percentage of observations rejected by quality control at level shown during period.
- :SD :SD of difference of observations from background values at level shown excluding those with gross errors.
- :BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	1	0	0.0	0.0	0.0
DBLK	00	Z	500	1	0	0.0	9.0	-9.0
EHOA	00	Z	500	1	0	0.0	16.0	16.0
EHOA	12	Z	500	22	0	9.4	12.8	8.8
FNOR	00	Z	500	7	0	13.7	16.5	9.1
FNOR	12	Z	500	8	0	14.8	15.0	-2.4
FNOU	00	Z	500	10	0	10.6	10.7	1.0
FNOU	12	Z	500	9	0	8.4	8.4	1.2
FNPH	00	Z	500	14	0	18.6	18.6	-0.5
FNPH	12	Z	500	14	0	10.4	10.5	-1.8
FNRS	00	Z	500	13	0	9.5	9.7	-2.2
FNRS	12	Z	500	14	0	7.9	11.3	-8.0
GACA	00	Z	500	27	0	8.3	10.5	6.5
GACA	12	Z	500	28	0	13.0	13.4	3.0
JBOA	00	Z	500	1	0	0.0	5.0	-5.0
JIVB	00	Z	500	1	0	0.0	22.0	22.0
LDWR	00	Z	500	29	0	10.8	11.1	2.4
LDWR	12	Z	500	29	0	12.1	12.7	3.9
OXYL	00	Z	500	7	0	10.4	10.5	1.4
OXYL	12	Z	500	6	0	9.1	18.1	15.7
SHIP	00	Z	500	3	0	16.3	24.3	18.0
SHIPAE	00	Z	500	1	0	0.0	7.0	7.0
SHIPAF	00	Z	500	13	0	11.3	17.1	12.8
SHIPAF	12	Z	500	12	0	8.9	12.1	8.3
UQYC	00	Z	500	1	0	0.0	3.0	3.0
V2GH	00	Z	500	8	1	6.9	6.9	-0.8
V2GH	12	Z	500	8	0	9.1	9.1	0.9
V2LV	00	Z	500	23	0	10.7	11.2	3.0
V2LV	12	Z	500	24	0	16.6	17.3	5.1
V2LX	00	Z	500	23	0	10.8	10.8	1.2
V2LX	12	Z	500	24	0	7.5	8.4	-3.8
WTEA	00	Z	500	1	0	0.0	20.0	20.0
ZDLG	00	Z	500	1	0	0.0	50.0	50.0
03953	00	Z	500	29	0	9.0	10.2	4.9
03953	12	Z	500	28	0	11.0	12.2	5.1
04018	00	Z	500	29	0	16.8	17.5	5.0
04018	12	Z	500	29	0	15.3	18.0	9.4
04220	00	Z	500	29	0	18.8	19.2	3.9
04220	12	Z	500	30	0	16.3	17.5	6.4
04270	00	Z	500	29	0	12.5	15.1	8.5
04270	12	Z	500	29	0	16.6	16.9	3.2
04339	00	Z	500	29	0	16.3	17.2	5.7
04339	12	Z	500	30	0	15.6	16.1	3.8
04360	00	Z	500	28	0	16.0	16.1	2.2
04360	12	Z	500	29	0	12.1	12.2	-0.2
08001	00	Z	500	25	0	16.7	17.6	5.6
08001	12	Z	500	28	0	16.1	16.6	-4.2
08508	00	Z	500	28	0	11.5	16.0	11.1
08508	12	Z	500	30	0	11.8	11.8	-0.2
08594	00	Z	500	26	0	6.2	6.5	2.0
08594	12	Z	500	27	0	13.1	13.8	4.5
60020	00	Z	500	29	0	10.3	12.5	7.1
60020	12	Z	500	30	0	9.0	10.6	5.7
71600	00	Z	500	26	0	11.2	13.3	7.1
71600	12	Z	500	30	0	10.3	13.8	9.2
72201	00	Z	500	27	0	7.7	15.2	13.1
72201	12	Z	500	28	0	8.1	11.9	8.7
72402	00	Z	500	29	0	11.2	19.2	15.6
72402	12	Z	500	30	0	12.2	18.2	13.6
74494	00	Z	500	25	0	16.6	16.8	2.7

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
74494	12	Z	500	30	0	13.3	13.5	2.6
78016	00	Z	500	1	0	0.0	0.0	0.0
78016	12	Z	500	16	0	7.6	9.6	5.9

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :VECTOR WIND in $m\ s^{-1}$

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	1	0	0	0.0	3.8	-3.0
DBLK	00	V	100	1	0	0	3.6	3.4	5.0
EHOA	00	V	100	1	0	0	2.6	-5.4	-0.6
EHOA	12	V	100	20	0	0	2.6	-2.2	3.3
FNOR	00	V	100	6	0	0	3.6	0.1	-2.0
FNOR	12	V	100	7	0	0	3.6	-1.7	-1.3
FNOU	00	V	100	10	0	0	3.6	-0.4	-1.1
FNOU	12	V	100	9	0	0	3.5	-3.0	-2.5
FNPH	00	V	100	13	0	0	3.5	-1.6	-1.1
FNPH	12	V	100	10	0	0	3.3	-1.0	-0.6
FNRS	00	V	100	12	0	0	3.3	0.4	0.9
FNRS	12	V	100	13	0	0	4.1	0.3	-0.8
GACA	00	V	100	27	0	0	3.3	0.7	-1.1
GACA	12	V	100	27	0	0	2.4	-0.2	-1.4
JBOA	00	V	100	1	0	0	2.0	0.5	0.8
LDWR	00	V	100	29	0	0	2.0	0.7	-0.1
LDWR	12	V	100	28	0	0	2.5	-0.3	-0.1
OXYL	00	V	100	7	0	0	1.9	0.6	-0.4
OXYL	12	V	100	6	0	0	1.9	2.1	-1.9
SHIP	00	V	100	1	0	0	1.9	2.5	-4.9
SHIPAE	00	V	100	1	0	0	1.9	-0.3	0.1
SHIPAF	00	V	100	7	0	0	1.9	3.5	1.6
SHIPAF	12	V	100	4	0	0	1.9	1.0	-0.5
UQYC	00	V	100	1	0	0	1.9	0.0	0.1
V2GH	00	V	100	8	0	0	2.1	0.8	-4.4
V2GH	12	V	100	9	0	0	2.1	-0.6	-0.7
V2LV	00	V	100	23	0	0	2.1	0.6	-0.2
V2LV	12	V	100	24	0	0	4.8	1.1	-1.2
V2LX	00	V	100	21	0	0	4.5	-0.5	-1.0
V2LX	12	V	100	24	0	0	3.4	-1.9	-1.6
WTEA	00	V	100	1	0	0	3.3	-3.4	-0.5
ZDLG	00	V	100	1	0	0	5.8	-0.9	1.0
03953	00	V	100	29	0	0	2.5	0.8	0.5
03953	12	V	100	28	0	0	2.7	-0.1	0.5
04018	00	V	100	29	0	0	1.9	0.8	-1.6
04018	12	V	100	29	0	0	3.4	-0.7	-1.3
04220	00	V	100	29	0	0	1.8	0.3	1.7
04220	12	V	100	30	0	0	2.9	0.2	1.2
04270	00	V	100	27	0	0	2.5	0.9	0.6
04270	12	V	100	28	0	0	4.4	0.7	0.4
04339	00	V	100	28	0	0	2.0	0.9	-0.7
04339	12	V	100	29	0	0	2.5	1.3	-0.9
04360	00	V	100	25	0	0	2.7	0.7	-0.1
04360	12	V	100	29	0	0	2.8	0.4	0.3
08001	00	V	100	21	0	0	2.7	1.1	0.7
08001	12	V	100	27	0	0	2.1	-0.6	0.3
08508	00	V	100	28	0	0	3.0	-0.2	-0.7
08508	12	V	100	29	0	0	2.6	-0.8	-1.3
60020	00	V	100	29	0	0	2.6	-0.2	0.9
60020	12	V	100	30	0	0	2.7	-1.4	2.6
71600	00	V	100	25	0	0	7.5	1.0	-0.3
71600	12	V	100	29	0	0	2.9	0.9	0.2
72201	00	V	100	27	0	0	2.3	0.6	-0.8
72201	12	V	100	26	0	0	4.5	0.4	-1.5
72402	00	V	100	26	0	0	3.5	0.8	-0.4
72402	12	V	100	22	0	0	4.7	0.3	-0.2
74494	00	V	100	25	0	0	3.2	-0.5	0.9
74494	12	V	100	26	0	0	3.0	0.2	0.9

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:April, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	1	0	0	0.0	0.3	3.1
DBLK	00	V	500	1	0	0	2.6	1.3	4.2
EHOA	00	V	500	1	0	0	2.6	2.1	-1.8
EHOA	12	V	500	22	0	0	2.6	0.0	0.5
FNOR	00	V	500	7	0	0	3.5	2.0	-0.1
FNOR	12	V	500	8	0	0	3.5	1.1	-0.5
FNOU	00	V	500	10	0	0	3.5	-0.7	-0.2
FNOU	12	V	500	9	0	0	2.9	-1.2	-0.6
FNPH	00	V	500	13	0	0	2.9	0.4	0.5
FNPH	12	V	500	10	0	0	3.2	0.3	-0.5
FNRS	00	V	500	13	0	0	2.2	1.0	-0.8
FNRS	12	V	500	14	0	0	3.0	-1.2	-0.9
GACA	00	V	500	27	0	0	4.1	1.0	-0.9
GACA	12	V	500	28	0	0	3.7	0.4	0.8
JBOA	00	V	500	1	0	0	3.1	2.0	0.3
JIVB	00	V	500	1	0	0	3.1	5.5	-3.3
LDWR	00	V	500	29	0	0	3.1	0.9	0.9
LDWR	12	V	500	29	0	0	4.4	0.1	-0.4
OXYL	00	V	500	7	0	0	4.1	2.4	-1.0
OXYL	12	V	500	6	0	0	4.1	-0.2	-0.7
SHIP	00	V	500	3	0	0	4.1	4.0	-2.6
SHIPAE	00	V	500	1	0	0	4.1	-2.6	3.9
SHIPAF	00	V	500	13	0	0	4.1	0.0	0.4
SHIPAF	12	V	500	12	0	0	2.7	-0.5	-0.6
UQYC	00	V	500	1	0	0	2.6	0.2	-1.6
V2GH	00	V	500	8	0	0	5.2	1.3	0.7
V2GH	12	V	500	8	0	0	5.2	-1.0	0.2
V2LV	00	V	500	23	0	0	5.2	1.3	-1.4
V2LV	12	V	500	23	0	0	4.4	-1.1	-0.1
V2LX	00	V	500	23	0	0	3.9	0.5	0.3
V2LX	12	V	500	23	0	0	3.1	-0.1	0.2
WTEA	00	V	500	1	0	0	3.3	-0.7	-0.1
ZDLG	00	V	500	1	0	0	3.6	3.8	3.1
03953	00	V	500	29	0	0	3.4	0.7	-0.1
03953	12	V	500	28	0	0	2.6	-0.6	-0.4
04018	00	V	500	28	0	0	3.3	0.4	0.5
04018	12	V	500	29	0	0	4.0	0.4	-0.2
04220	00	V	500	29	0	0	3.1	0.0	0.6
04220	12	V	500	30	0	0	3.4	-0.6	-1.2
04270	00	V	500	29	0	0	3.1	-0.5	0.6
04270	12	V	500	29	0	0	4.2	0.8	-0.9
04339	00	V	500	28	0	0	3.0	0.9	-0.1
04339	12	V	500	29	0	0	3.6	0.0	0.2
04360	00	V	500	27	0	0	3.5	-1.2	1.0
04360	12	V	500	29	0	0	3.5	-0.5	0.3
08001	00	V	500	25	0	0	3.0	0.4	1.1
08001	12	V	500	28	0	0	2.1	-0.6	0.6
08508	00	V	500	28	0	0	3.8	0.1	0.9
08508	12	V	500	30	0	0	3.3	-1.1	0.1
60020	00	V	500	29	0	0	2.6	1.7	-0.1
60020	12	V	500	30	0	0	3.9	0.5	0.3
71600	00	V	500	26	0	0	11.6	0.0	-1.2
71600	12	V	500	30	0	0	3.6	1.4	0.1
72201	00	V	500	27	0	0	2.8	1.0	0.6
72201	12	V	500	28	0	0	3.2	-0.3	0.6
72402	00	V	500	28	0	0	3.7	0.8	0.0
72402	12	V	500	26	0	0	3.6	-0.2	1.1
74494	00	V	500	25	0	0	3.6	0.1	0.6
74494	12	V	500	29	0	0	2.7	-1.5	1.2
78016	00	V	500	1	0	0	4.1	-1.0	-1.5
78016	12	V	500	16	0	0	4.1	-1.3	0.4

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45